

Trade and Investment in Services: Canada/US Perspectives

Edited by Robert M. Stern

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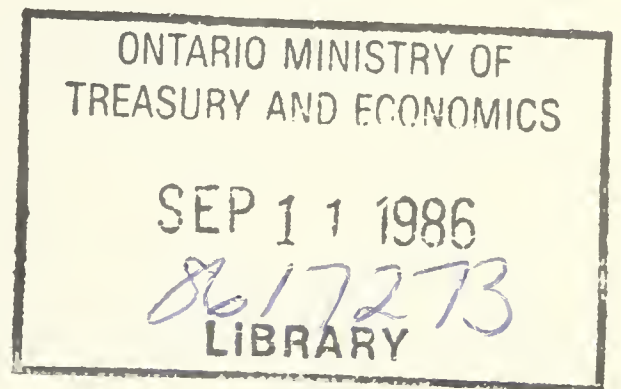
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TRADE AND INVESTMENT IN SERVICES:
CANADA/US PERSPECTIVES

Trade and investment in services: Canada/US perspectives

Edited and with an introduction by Robert M. Stern
University of Michigan

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Contents

PREFACE vii

INTRODUCTION AND OVERVIEW 3

Robert M. Stern

COMPARATIVE ADVANTAGE AND INTERNATIONAL TRADE AND
INVESTMENT IN SERVICES 39

Alan V. Deardorff

Comments: *Ronald W. Jones* 72

James R. Melvin 77

NORMATIVE ISSUES RAISED BY INTERNATIONAL TRADE
IN TECHNOLOGY SERVICES 83

Gene M. Grossman and Carl Shapiro

Comments: *Rachel McCulloch* 114

Alan M. Rugman 119

GLOBAL DIMENSIONS AND DETERMINANTS OF INTERNATIONAL TRADE
AND INVESTMENT IN SERVICES 126

Robert M. Stern

Comments: *Irving B. Kravis* 169

Ronald J. Wonnacott 176

NEGOTIATING ABOUT TRADE AND INVESTMENT IN SERVICES 181

Rodney de C. Grey

Comments: *Robert E. Baldwin* 195

Geza Feketekuty 200

NEGOTIATING STRATEGIES FOR LIBERALIZING TRADE
AND INVESTMENT IN SERVICES 203

Geza Feketekuty

THE CANADIAN TREATMENT OF FOREIGN BANKS: A CASE STUDY IN THE
WORKINGS OF THE NATIONAL TREATMENT APPROACH 215

John F. Chant

Comments: *C. Richard Neu* 245

Lloyd C. Atkinson 253

TRADE IN COMMUNICATIONS AND DATA PROCESSING 256

Peter F. Cowhey and Jonathan D. Aronson

Comments: *Leonard Waverman* 291

Robert G. Logan 299

TECHNOLOGY TRANSFER AND
CANADA'S COMPETITIVE PERFORMANCE 304

Donald J. Daly

Comments: *Gary R. Saxonhouse* 334

Andrew R. Moroz 339

PARTICIPANTS 345

Preface

The series of annual workshops on Canadian/US relations was launched in 1982 as a joint effort by the Institute of Public Policy Studies of the University of Michigan and the Centre for the Study of International Economic Relations of the University of Western Ontario. The first workshop, held in Ann Arbor on 8-9 April 1982, dealt with the Canadianization of the energy sector and the Canadian foreign investment review process. These proceedings were published in December 1982 by the Institute of Public Policy Studies. The second workshop was devoted to Canadian/US trade and investment frictions and their implications for Ontario and the global economy. It was held in London, Ontario on 18-19 November 1983, and these proceedings are to be published by the Ontario Economic Council.

While the first workshop was a rather modest affair, subsequent ones have grown in scope and size and taken on a somewhat more academic tone. In particular, efforts were made in organizing the second and third workshops to commission papers and discussants' comments allowing for a substantial lead time. The objective was to have established scholars, government officials, and members of the business community prepare papers and comments that would reflect their long experience and thoughts on the important issues and provide a useful reference for those who subsequently might be interested in reading about the issues. Having the written papers in advance also permitted more time for critical comment and discussion in the workshop sessions.

It is, of course, costly to organize and administer these workshops. We could not have organized the third workshop without the generous assistance that was provided by the Ford Foundation, Donner Foundation, National Science Foundation, Ontario Economic Council, Bank of Montreal, IBM Canada, and the Fishman-Davidson Center of the University of Pennsylvania. I would also like to express my appreciation to the staff of the Institute of Public Policy Studies for their untiring efforts in arranging the details of the workshop and for seeing that it ran smoothly. Judy Brown, Judy Jackson, and Helene McCarren are to be thanked especially in this regard. Debbie Fretz and Barb Ross of the Centre for the Study of International Economic Relations of the University of Western Ontario looked after things in Canada, and John Whalley was instrumental in helping to organize the program and in obtaining funds from Canadian sources. Chris Jackson and Judy Jackson played a major role in assisting me with the preparation of the introduction and overview and with the editing of the volume as a whole.

Plans are under way for the next two workshops. The Fourth Annual Workshop is scheduled to be held in April 1986 in London, Ontario, and will deal with perspectives on a Canada/US free trade agreement. The 1987 Workshop will be held in Ann Arbor and will address current issues in Canadian/US trade and investment with Japan.

Robert M. Stern

Ann Arbor, Michigan
6 May 1985

TRADE AND INVESTMENT IN SERVICES:
CANADA/US PERSPECTIVES

Introduction and overview

Robert M. Stern

University of Michigan

This volume contains the papers and comments presented at a workshop on Trade and Investment in Services: U.S.-Canadian Perspectives. The workshop was the third in a series sponsored annually by the Institute of Public Policy Studies of the University of Michigan and the Centre for the Study of International Economic Relations of the University of Western Ontario. The workshop was held in October 1984 in Ann Arbor. Seven full papers plus discussants' comments were presented along with a keynote address.

Liberalization of trade and investment in service industries has been a key item on the US policy agenda in recent years. It was agreed at the November 1982 ministerial meeting of the General Agreement on Tariffs and Trade (GATT) that national government working groups should prepare studies of the major issues. While a considerable amount of data and descriptions of individual service sectors and their problems have become available, comparatively little attention has been devoted to conceptual issues, assessments of the orders of magnitude of the trade and investment involved, the framework for possible negotiations, and current experiences and problems in particular sectors. It thus appeared that a workshop organized under academic auspices might make a useful and lasting contribution to this important, emerging area of international policy.

The workshop began on a conceptual note with theoretical papers by Alan V. Deardorff and by Gene M. Grossman and Carl Shapiro, who examined respectively the applicability of comparative advantage to trade and investment in services, and the normative issues raised by trade in technology services. Robert M. Stern then

assessed the empirical dimensions and determinants of trade and investment in services. This was followed by Rodney de C. Grey and Geza Feketekuty, who examined the possible framework for negotiations and negotiating strategies. The final three papers dealt more narrowly with sectoral issues and problems of bilateral concern to the United States and Canada. John F. Chant addressed the Canadian treatment of foreign banks, Peter F. Cowhey and Jonathan D. Aronson analysed trade in communications and data processing, and Donald J. Daly examined technology transfer and its implications for Canada's competitive performance. Each of the papers was followed by discussants' remarks and questions and comments from the floor.

It is difficult in a volume such as this to capture the spirited exchanges that took place both during the sessions and in the informal discussions. The consensus of those involved was that many of the important issues were aired clearly and dispassionately. Hopefully this view will be conveyed in the summaries of the papers and comments that follow, and in the overview of the major themes that emerged from the workshop as a whole.

SUMMARY OF PAPERS AND COMMENTS

Deardorff on comparative advantage

What are the implications for the standard theoretical treatment of international trade if it is acknowledged that services may have different characteristics from goods, and that trade in services has not often been explicitly considered in its own right? More particularly, do the principles and theorems of trade theory apply as well to traded services as they do to goods? In his paper, Alan V. Deardorff addresses these questions, paying particular attention to the robustness of the principle of comparative advantage.

While recognizing the inherent difficulties of distinguishing the characteristics that set goods apart from services, Deardorff singles out three characteristics of services that, in his view, might violate comparative advantage. These distinguishing characteristics are:

- 1 Trade in services as a *byproduct* of trade in goods.
- 2 Trade in services associated with international factor mobility.

3 The consumption of services being location specific but produced by foreign management located elsewhere.

In treating trade-services (i.e., transportation, insurance, and financing), Deardorff notes that such services have no well-defined autarky prices, and that this lack may pose some difficulty for the principle of comparative advantage. He demonstrates, however, by drawing upon his earlier published work, that the goods and services that a country exports must on average be worth less to it in autarky than the goods and services it imports. The same conclusion holds when goods only are treated as a subcategory of total trade. He concludes therefore that the principle of comparative advantage is applicable to trade-services.

Deardorff then considers that trade in services is frequently associated with international direct investment, which may involve the physical relocation of factors of production from the exporting to the importing country. As such, trade in services becomes synonymous with international factor mobility, and the fact that a service is provided is manifested through the repatriation of profits and other factor earnings. This does not pose any analytical difficulty, however, since the goods and the productive factors that are exported will have been cheaper on average in autarky than those that are imported. Again, the principle of comparative advantage is shown to be robust.

Finally, Deardorff analyses the locational and technological characteristics of services. He notes that the production of goods requires the simultaneous presence of all factors of production and that the marketing of goods does not require the presence of the consumer. The production of services, in contrast, requires the presence of the consumer, but does not necessarily require the presence of all factors of production. Deardorff calls the 'absent factor' in the production of traded services management. Management is assumed to be located in the exporting country, but contributes solely to the production of services in the importing country. For purposes of analysis, Deardorff formulates a Heckscher-Ohlin two-good (one of which is a service), two-factor, two-country model. He assumes that Country A has a comparative advantage in the production of services and proceeds to analyse three cases:

- 1 Services are management intensive in A.
- 2 Services are labour intensive in A.
- 3 A has a technological superiority.

In the first case, he shows that Country A will export services and import the tradable good. Furthermore, assuming incomplete specialization, the prices of goods and services across countries will be equalized. In the second case, however, comparative advantage may not hold. That is, even though Country A has a comparative advantage in services, Deardorff finds that it will import services and export goods. This appears to violate comparative advantage. But if the principle is reinterpreted so that countries export those items that embody their relatively abundant factor, then the seeming contradiction is resolved. In such a case, Country B exports services because it has a relative abundance of the factor management, which can be used in absentee form to produce services to be consumed in A.

In the final case, Country A's comparative advantage stems from superior technology in services production. Although management in A is relatively expensive, the country can export services if its technological superiority outweighs the relative costliness of its management. This case poses a problem for comparative advantage since even though the autarky price of management may be higher in A than in B, Country A nonetheless appears to be exporting management services.

In the final analysis, while the principle of comparative advantage is shown to be valid for trade-services and international factor mobility, but not necessarily when there are 'absent' factors and differences in technology, Deardorff thus concludes that the principle may not be fully robust in all circumstances.

Comments by Jones

In his commentary, Ronald W. Jones takes issue with Deardorff's conclusion that the principle of comparative advantage may not always be applicable to trade in services. Concentrating his remarks on the most troublesome of Deardorff's cases, Jones suggests that it is possible to interpret the results in a manner that would support, not undermine, the principle of comparative advantage.

Jones has no objection to Deardorff's definitions of the characteristics of services noted above, but he disagrees with the contention that services cannot be adequately handled within the standard Heckscher-Ohlin framework. Indeed, he argues that models of international capital mobility are flexible enough to allow for absent-factor production.

In Deardorff's second case, in which services were labour intensive in Country A, Jones argues that comparative advantage successfully predicts the flow of Country B's management to Country A, despite the fact that the relative autarky price of services is lower in Country A. It is of no consequence for the theory that management-capital does not actually move physically from one country to the other.

As for Deardorff's third case, Jones is not entirely convinced by Deardorff's argument. In particular, he suggests that the technical superiority in service production in Country A could reflect higher quality of management, and that differences in the quality of management need to be accounted for in autarky prices. In these circumstances, the prediction of comparative advantage is upheld.

Comments by Melvin

James R. Melvin argues that Deardorff is perhaps too hasty in abandoning the search for an unambiguous characterization of services. Melvin distinguishes between commodity services and factor services. Examples of the former include haircuts and automobile or refrigerator services, while examples of the latter involve labour, land, and capital. An important distinction between the two types is that factor services, invariably, are produced and consumed simultaneously, whereas there is no necessary link either in space or time between consumption and production for commodity services. According to Melvin, the dimensions of space and time are important in analysing services, and neglect of these dimensions may lead to analytical confusion.

With respect to trade-services, Melvin argues that these should be treated as intermediate inputs to the production of a location-indexed commodity. As intermediate inputs, they fit nicely into the comparative advantage framework. With respect to the problem of whether there is an autarky price for trade-services, Melvin suggests that these services would be demanded in autarky to facilitate domestic trade. He argues that the differences in the nature of

international and domestic trade are largely quantitative rather than qualitative, and thus that an autarky price could be determined in accordance with comparative advantage. Similarly, traded factors or international factor mobility are not seen to pose any difficulty. Finally, Melvin is not convinced that Deardorff's analysis of the 'absent' factor cases is particularly detrimental to comparative advantage when allowance is made for a broader interpretation and factor quality differences are taken into account.

Grossman and Shapiro on trade in technological services

Grossman and Shapiro examine the normative implications of trade in technology, specifically, trade in disembodied technology, using various assumptions regarding market structure. Their basic premise is that technology is a form of information and, as such, technology is akin to a public good. They suggest three important implications of this premise:

- 1 Given the public-good nature of technology, its benefits are not entirely appropriable by its innovators; that is, there will be a divergence between the social and private rates of return to innovation.
- 2 If technology is viewed as an intermediate input, it can lead to economies of scale in production and hence imperfectly competitive market structures.
- 3 Competition among innovators in the sale of technology to foreign firms can lead to suboptimal outcomes for the home country, thus providing scope for government intervention through trade policy.

The foregoing considerations give rise to two predominant concerns that Grossman and Shapiro bring to light in their analysis. First, they ask if technology will be over- or underproduced, and if opportunities for trade in technology and/or government policy can affect this outcome. Second, they seek to understand the relationship between trade in technology and market performance in an imperfectly competitive setting.

Grossman and Shapiro present some empirical evidence on intrafirm and interfirm trade in technology. While the data are subject to measurement difficulties and reflect a variety of underlying

motivations of the firms and governments involved, they conclude that the greater part of trade in technology is of the intrafirm variety. This may reflect the preference of firms to maintain exclusive control over the production and dissemination of their know-how, although some observers argue that interfirm transactions are relatively small because of the competition involved and the ability of foreign companies to obtain US technology at bargain rates. The authors also document the predominance of the United States in technology trade as measured by receipts of royalties and fees.

In reviewing the literature on trade in technology, the role of perfectly competitive market structures and the role of national governments acting as intermediaries are called into question by the authors. In the standard analysis, a domestic firm's technological superiority over foreign firms is translated as one nation's technological superiority over foreign nations. Governments are then treated as technology traders. Grossman and Shapiro contend that such a framework cannot provide any insight into the decision-making problems for individual firms, such as whether to buy or sell rights to technology, what prices to charge, and the general equilibrium outcomes of firm-to-firm trade in technology. The authors also note the failure of existing models to endogenize the dynamics of research and development (R&D) and thus capture the impacts of trade in technology and trade policy on the incentives to conduct R&D.

The importance of intrafirm trade in technology is seen to be 'inextricably linked' with foreign direct investment (FDI). One important consideration is the possibility that intrafirm trade in technology can have spillover effects in foreign countries. That is, by transferring technology to foreign subsidiaries, 'information' is placed in close proximity to foreign competitors who, by various means, can acquire that information. These spillover effects can lead to stiffer competition at home, thus having a potentially (but not likely) negative impact on domestic welfare. The authors also consider the effects that inward FDI might have on incentives for R&D, and show that trade policy might serve some useful role here.

Finally, Grossman and Shapiro consider several scenarios of trade in technology under various market structures. Their examples illustrate the possibilities for externalities when single firms trade in technology, and the critical nature of the assumptions concerning

market structure in such models. They also consider the impacts that trade in technology might have on the incentives for R&D, and again take note of the divergence between social and private gains from innovation, which may be ambiguous since technology may be under- as well as over-produced in given situations. Similarly, they find ambiguities arising from the interactions and impacts that opportunities to trade may have on the incentives to R&D.

Given the intention of their paper to offer a framework for analysis rather than to provide concrete answers, Grossman and Shapiro conclude with an agenda of questions for further research. These questions involve how to determine an optimal subsidy level for R&D with technology transfer present; the conditions under which the restriction of technology exports may be justified and how countries might respond to foreign restrictions; and the possible role of joint ventures. In all these instances, a framework employing models of imperfect competition is deemed essential for analysis.

Comments by McCulloch

Rachel McCulloch's comment on Grossman and Shapiro's paper takes a practical approach to the issues raised. She is not overly enthusiastic about the possibilities for welfare-improving government intervention. She suggests that Grossman and Shapiro's theoretical arguments for optimal policy intervention (and, more generally, most arguments for optimal policy) are based on models ignoring the real-life informational requirements of such policy. Other factors they ignore are the potential for retaliatory action and the complex interactions that occur in a world comprised of more than two countries. For example, if one country imposes a ban on the licensing of export technology to another country, that country may still obtain technology elsewhere.

McCulloch's major difficulty with the Grossman-Shapiro analysis, however, has to do with the role they prescribe for government and especially the implicit motivations behind optimal policy intervention. First, she is 'uneasy' with the view that the government's role is to 'seek out and correct market failures'. Many of the distortions in technology/trade and R&D, in her view, are the result of government intervention. In this second-best world, government can achieve overall welfare gains by reducing and/or eliminating the distortions it has created. Second, and perhaps most important, she

does not see improvements in national welfare as the objective of trade policy. Rather, trade policy is the outcome of a political process concerning narrower or unrelated objectives – that is, the welfare of specific interest groups or global political imperatives. This contrasts with Grossman and Shapiro who implicitly view maximization of overall welfare to be the motivation for intervention.

Finally, McCulloch agrees with Grossman and Shapiro on the importance of the appropriability problem and the divergence between private and social incentives for R&D. She points out, however, that the mere possession of disembodied technology (that is, items such as blueprints or specifications) is of little value without the necessary complements of 'know-how' or 'can-do'. These factors have a high degree of appropriability. After all, know-how is an attribute embodied within the owner of the resource. Grossman and Shapiro neglect this in their analysis.

Comments by Rugman

Alan M. Rugman is critical of several aspects of the Grossman-Shapiro analysis. He questions the relevance of the work and, indeed, the relevance of the 'issue' of trade in technology services in general. In his view, trade in technology services is a 'non-issue', the real issue being the understanding of the nature of decision-making within the multinational enterprise (MNE).

Rugman criticizes Grossman and Shapiro's implicit argument that deficits or surpluses in technology-services trade have normative implications and signal the need for policy intervention. He argues that in Canada's case the deficit in technology trade has been fostered by misguided Canadian trade and foreign investment policies of the past. Further, he stresses the importance of consumer welfare. From the consumer's viewpoint, he argues, it does not matter whether the goods consumed embody technology that has been developed at home by a domestic or foreign firm, or abroad by a domestic or foreign firm.

On the problem of appropriability, Rugman suggests that MNEs are structured and 'strategically managed' to appropriate any firm-specific advantages in their possession. He argues that there is sufficient global competition among MNEs to thwart the attainment of purely monopolistic advantages in most cases. Consequently, while he thinks Grossman and Shapiro are correct in adopting micro-, firm-level models and analysing these models within imperfectly

competitive environments, from a realistic perspective their models are too 'imperfect' and not 'competitive' enough. Furthermore, he argues that their models are too simplistic to capture the interesting, but complicated, dynamic-strategic reactions of MNEs to changes in host government policies.

Rugman questions Grossman and Shapiro's treatment of licensing. At present only 10 per cent of all foreign trade in technology falls under licensing arrangements, while the remainder is divided between FDI and exports, with each having about half.

Rugman urges the redirection of attention to the decision-making process of the MNE. This would yield returns in the understanding of how MNEs decide on and gain entry to markets and what factors motivate technology transfers. In particular, he considers it important to determine whether MNEs exist and operate to reduce national transactions costs or whether they restrict markets in order to exploit as fully as possible any advantages they may have. He raises, as a final point, the question of whether all nations necessarily need or want trade in technology services. Citing the Canadian experience, his answer is: not necessarily.

Stern on global dimensions and determinants

The paper by Robert M. Stern is designed to assess the available information on trade and investment in services and to relate it to the analysis of current empirical and policy issues.

He first considers the characteristics and alternative classifications of services and the measurement problems associated with services data. He notes the difficulties of discriminating between what is a good and what is a service, and the distinguishing characteristics of services, which is that production and consumption occur simultaneously. He also notes two particularly troublesome areas in services measurement. These are intrafirm transactions and public goods. Other problems noted are discrepancies between the classification of services for purposes of recording international transactions and constructing national accounts, and the incomplete recording of the activities and transactions of foreign affiliates in their host countries. Finally, he presents some alternative classificatory schemes which have been suggested for a variety of analytical purposes.

In examining the empirical evidence on the types and magnitude of services trade, Stern points out that trade in services is dwarfed by trade in goods, that the United States is not dominant in world trade services, and that US business-related services trade is less important than trade in transportation and tourism services (as is the case for most industrialized countries). Stern is then led to ask if the existing data understate the true extent of services trade, but he is unable to offer a definitive answer that would support the idea that the understatement is sizeable.

Stern reinforces the point made by others that the existing coverage and detailed classifications of trade in services are deficient, and that these deficiencies limit the evaluation of trade policy options and research on service-related issues. He also notes recent efforts to improve the data situation.

Stern argues that comparative advantage is the most appropriate framework to use in analysing the determinants of trade and investment in services, and he briefly discusses three empirical studies that demonstrate the usefulness of the comparative advantage framework in analysing services trade. The implication is that if trade and investment in services are seen to reflect comparative advantage, then a basis exists on which to analyse normative as well as positive issues.

Finally, Stern asks, in light of the relatively small amount of trade in services and the current disarray within the GATT, if the attention towards services issues might seem misdirected. If negotiations on services issues are to be pursued nonetheless, he urges more work be done to evaluate the costs and benefits of various negotiating options.

Comments by Kravis

Irving B. Kravis agrees with most of Stern's conclusions, and supplements them with some remarks of his own. He first draws a further distinction between goods and services, which is that the production of goods generally involves the use of far more intermediate inputs than the production of services.

Kravis's second point involves the interpretation of the existing data. He notes that the most detailed source for services-trade data distinguishes only six categories of services. To make matters worse, the most interesting services (from the perspective of the US initiative) are aggregated into an 'all other' category. Using the scant and

deficient data, Kravis computes indices of 'revealed comparative advantage' in services for several countries and regions. By his method, the Six European Economic Community countries (EEC[6]) and the category 'other developing countries' have a comparative advantage in services exports while the United States, Canada, and Japan have a comparative disadvantage.

Based on his data, he questions whether the United States could emerge as a 'winner' in negotiations on services. The United States shows a comparative advantage only in the 'other transport' category, although, as Kravis mentions, aggregation may be hiding comparative advantage in specific service sectors. He concludes that the success of the US initiative depends on the objective being sought. If the initiative is aimed at reducing barriers in specific areas, the United States may benefit. He is dubious, however, about the possibility of gains if the US objective is a general reduction of restrictions to trade in services.

Comments by Wonnacott

Ronald J. Wonnacott begins by discussing why economists have devoted so little effort to studying services. The reasons may be that services are intangible, poorly documented, and difficult to define conceptually. He then suggests reasons why services are less important in trade than they are domestically. These reasons are that many services are inherently nontradable, and that there may be severe restrictions on some of the services that are traded. Elaborating on this last point, he agrees with Stern's recommendation about the importance of identifying and assessing the costs and benefits of current restrictions on services trade.

Wonnacott notes that the potential gains from liberalized services trade could arise from lowering or removing existing restrictions, the realization of scale economies, especially for small countries like Canada, and the elimination of suboptimal methods of production of information and other services.

Wonnacott is sceptical about comparative advantage as an appropriate model for analysing patterns of trade in services. He also notes the close connection between trade and investment in services, and that restrictions on trade in services may serve as instruments to control the activities of foreign firms in a host country. He asks if, perhaps, this may be a partial motivation for the US initiative. That

is, it may not be so much free trade in services as more freedom for US affiliates in foreign countries that is the objective of the proposal. His final point is that the existing disarray in trade in goods may make it questionable that attention should be redirected towards services.

Grey on negotiations

Rodney de C. Grey sets out four propositions regarding the proposal for comprehensive negotiations to develop a general code governing trade and investment in services. These propositions are:

- 1 Trade and investment in services should not be viewed as taking place in the absence of rules.
- 2 Nations have limited negotiating skills and resources that should not be taxed further without clear notions of the objectives of services-trade negotiations.
- 3 The GATT should not be seen as an analogue for a set of general rules on services.
- 4 There are other trade policy issues of more importance than services-trade issues.

Regarding proposition (1), Grey comments that bilateral and sectoral agreements covering many services are already in place and that the instigators of the 'services proposal' must demonstrate that these existing arrangements cannot be adapted to provide a reasonably workable framework for traded services. In other words, a sector-by-sector approach may be a more effective means of dealing with services trade restrictions than a negotiation of multisectoral rules.

In the light of his propositions (2) and (4), Grey contends that a strong case has to be made for redirecting efforts to negotiations on services.

Grey's main proposition is that the GATT should not serve as a model for a framework of rules on traded services. The reason is that the GATT is not working effectively for goods and therefore cannot be reasonably expected to work for services. He observes that the GATT principles of nondiscrimination and no new preferences have been widely ignored in practice. The development of general rules based on

the GATT model would likely lead therefore to additional preferences and discrimination on traded services rather than reductions in them. Grey points out that Canada and the United States might be especially affected since, as with preferences on goods, preferences on services would likely be directed against North America.

Another important principle of the GATT is national treatment. Grey argues that there are many examples of violations of this principle. Finally, he suggests that the adoption of GATT-type rules for services might ultimately sanction restrictive actions with respect to services that have not been common in the past; that is, such actions as anti-dumping duties, countervailing duties against subsidized exports, and restrictions on services-trade to satisfy balance-of-payments requirements.

Grey argues forcefully that more important issues need to be resolved before the services-trade problems are addressed. In particular, he suggests the following priorities: international monetary management; the achievement of more stable growth among the Organization for Economic Co-operation and Development (OECD) countries; the bringing of order and rules to sectors of traded-goods where currently there is 'anarchy'; and the granting of access to the manufactured exports of the developing countries.

Grey believes that a headlong rush into services-trade negotiations could only have two possible outcomes: either no useful conclusion could be obtained, or the United States and the EEC would end up imposing their will upon others. Both outcomes are viewed as unsatisfactory. Some appreciation of the positions and interests of countries other than the United States or EEC members is what is required, according to Grey. The present reluctance of the developing countries to agree to negotiations is because they understand very well the nature of the 'service proposal' and cannot envision their interests being advanced under it.

Thus, Grey's position is that the services-trade issue can and should wait. In the meantime, he considers other problems more pressing, although it would be useful to continue the examination of services-trade problems with a view to future treatment.

Comments by Baldwin

In his comment, Robert E. Baldwin is sympathetic to Grey's concern for the small countries, but at the same time he is more optimistic

than Grey concerning the GATT and the possibilities for negotiations on trade in services under the aegis of the GATT.

Baldwin argues that in the recent past GATT has not been working very well, especially in the area of safeguard rules, which have been undermined with the proliferation of 'voluntary export restraints' as a means to protect domestic industries from import competition. He suspects that there will not be much support forthcoming for GATT safeguards until nations can solve the complex problem of protecting domestic industries and/or easing the domestic adjustment process while, at the same time, conforming to GATT regulations and agreements.

Baldwin offers several suggestions on how negotiations on services might be conducted if they occur. Participants to a negotiation would recognize a general framework setting forth the objectives of the negotiation and the principles to be followed. Thereafter, negotiations would be conducted with respect to specific sectors; each country would set forth what trade-liberalizing proposals it would offer and what concessions it might seek. In general, the negotiations would lead to the possibility of multilateral and bilateral arrangements aimed at liberalizing trade in services. This procedure, he notes, is a form of conditional most-favoured-nation (MFN) treatment and is more likely to yield fruitful results than the unconditional MFN principle.

Comments by Feketekuty

In commenting on Grey's paper, Geza Feketekuty seeks to clarify the US position regarding negotiations on trade in services. According to Feketekuty, the basic objective of the US proposal is to bring services within the scope of a framework of international rules, such as that provided for goods under the GATT. Both domestic economic and political imperatives are given as a rationale for the US push towards negotiation on services. Under the US proposal, the desired framework of rules should comprise some of the basic concepts of the GATT, but not necessarily the whole framework. The basic concepts to be taken from the GATT are: transparency; national treatment; competitive behaviour of public monopolies; consultation and dispute-settlement arrangements; and negotiability.

Several other points of contention are raised by Feketekuty. First, the United States has focused on trade in services and stayed away from issues associated with foreign direct investment, whereas Grey

gives the impression that investment is to be included in the proposed negotiations. Second, the United States has *not* proposed the application of the countervailing duty and anti-dumping provisions of the GATT to services-trade, whereas Grey is suspicious that these provisions would be carried over. Third, a negotiation over multisectoral service issues would in the long run involve less expenditure of negotiating effort than separate negotiations over sectoral issues, despite Grey's contention of the opposite. Fourth, services-trade policy is a main priority and should not be downplayed in favour of goods-trade policy. Fifth, enough countries support the US proposal to justify moving ahead with a negotiation even though some developing countries would oppose it. Finally, Feketekuty agrees with Grey that reciprocity, rather than unconditional MFN, would provide a workable basis for negotiating services-trade concessions.

Feketekuty on services issues and US policies

In his keynote address, Geza Feketekuty discusses the role played by the United States in bringing the services-trade issue into the international limelight, the US viewpoint on how negotiations on services trade might proceed and what general principles should emerge from such negotiations, and his own prediction of the future course of events with regard to negotiations.

He identifies four fundamental changes in the objective business and economic reality that have led to a growing interest in services-trade issues. These are:

- 1 The computer-communications revolution, which has permitted the separation of consumption and production of services.
- 2 The growth of multinational enterprises and their demands for global services has given rise to 'global-service-networks' through which service companies may now cater not only to MNEs but also to other foreign customers.
- 3 The increasing importance of service-production units within manufacturing enterprises and the tendency to sell these services outside the firm.
- 4 Trade in many goods that now increasingly requires trade in complementary services.

These changes have led to increasing calls from US service industry representatives for more concrete and concerted action on the part of the US government to bring order to international trade in services.

Feketekuty notes that the US Government has heeded the calls of US service-corporations, and that services are now 'fully embedded in the US trade policy process'. Part of this process has been the pursuit of a general framework that provides for services what the GATT provides for goods. He discusses the deliberations of the OECD trade committee regarding the most appropriate way to approach the services-trade issue and how to approach future negotiations. From the US viewpoint, he emphasizes five general principles that must be contained in any ultimate agreement. These are:

- 1 Transparency. All laws and regulations designed as trade barriers *must* be identified as such by the instigating authorities.
- 2 National treatment. All domestic laws and regulations not designed as trade barriers *should* be applied to foreign and domestic firms (nondiscrimination).
- 3 Public monopolies should stay within their mandates – they should not use their monopoly position to disadvantage foreign firms.
- 4 Reciprocity. Retaliation.
- 5 The orderly settlement of disputes through some form of impartial judicial-arbitration mechanism.

These principles provide a basic framework for an agreement without necessarily limiting the variety of negotiating approaches from which to choose. He mentions, however, one crucial qualification on the scope of negotiations, and that is to limit deliberations to services issues that are not related to foreign direct investment.

Several practical problems are described with respect to the pursuit of negotiations. These include a lack of broad public understanding of services-trade issues; a paucity of academic debate and research; deficiencies in the quality and availability of data on services trade; US laws that are not always compatible with a commercially-oriented approach to trade issues; and an absence of clearly defined responsibility for traded services in foreign governments.

In considering what a general agreement on trade in services might do, Feketekuty cites the recent bilateral agreement between the United States and Israel. He believes in taking advantage of all such opportunities for negotiating bilateral agreements if they arise before a general agreement is reached. In this way we can learn from experience and through example how a general negotiation might best be approached and what results might be expected.

Finally, he considers the current and future prospects for general negotiations covering trade in services. He points out that most of the developed countries are committed to such negotiations, some developing countries are interested but not committed, and some developing countries are adamantly opposed. He predicts, however, that the developed countries will continue to move towards negotiations, while developing countries will divide among participators and observers. Will these negotiations be under the aegis of the GATT? This is a question that is still to be answered. Regardless of how negotiations are conducted, Feketekuty notes that they will definitely impact on the GATT, as the United States will insist upon linkage between concessions on trade in goods and trade in services.

Chant on the Canadian treatment of foreign banks

The principle of national treatment has been fostered by the United States for some time. With respect to banking, it means that foreign banks operating in a given country are to be subject to the same restrictions and freedoms as domestic banks in that country. Essentially, the principle is one of nondiscrimination between foreign and domestic banks. In his paper, John F. Chant examines Canadian/US relations regarding the specific treatment of US banks, and the general treatment of foreign banks operating in Canada.

Can both sides come to agreement on what constitutes national treatment of the other's bank? Is national treatment a desirable policy objective for Canadian authorities? If it is, is it workable given the substantial differences in the respective systems of bank regulation and banking structure? In addressing these questions, Chant concludes that the principle of national advantage is fundamentally at odds with the historical development of banking in Canada, and that the adoption of the national treatment principle

would require a complete reversal in the philosophy underlying Canadian banking regulation.

Chant identifies three particularly important features of Canadian banking regulation. These are:

- 1 Banks are regulated primarily by rule rather than by discretion.
- 2 The federal Parliament alone is responsible for the regulation of the banking industry.
- 3 Stringent entry requirements are imposed on banks seeking a charter.

Chant points out that these features are interrelated. Stringent entry conditions substitute for discretionary control, and thus supplement regulatory controls in ensuring the stability of the banking system. And regulation by rule is certainly more feasible when there is only one law-making authority. He contrasts these features of Canadian bank regulation with those in the United States, where state and federal authorities oversee the regulation of banks, entry requirements are less stringent, and banking authorities have greater discretionary powers. These dissimilarities in the nature of bank regulation between the two countries reflect mainly a philosophy of bank regulation in Canada that is incompatible with the requirements of national treatment.

Chant traces the policy debate in Canada regarding the treatment of foreign banks. He notes the fears expressed over the prospects of foreign control of Canadian assets and concentrated economic and financial power represented by foreign bank interests. Two important developments outlined are the imposition of the 25 per cent limit to foreign ownership of Canadian banks, and the more comprehensive set of regulations pertaining to foreign banks set forth in the Bank Act of 1980. Chant points out that these regulations reflect a variety of factors. Foreign banks were pressing for chartered bank status in Canada. Canadian banks in the United States were concerned about retaliatory US legislation that might affect their operations adversely. Canadian bankers argued that the ill-defined status of foreign banks enabled these banks to engage in financial activities prohibited to domestic banks. Finally, Canadian authorities were concerned with the need to maintain the integrity and stability of the Canadian

banking system. The result of all these factors was a regulatory scheme far from the notion of national treatment, in which foreign banks were allowed chartered status but on a different footing from that of Canadian banks. Indeed, as Chant argues, the regulations in the Bank Act of 1980, while inconsistent with the national treatment principle, were not inconsistent with the historical necessities of Canadian banking regulation.

Chant assesses the practicality of the national treatment approach to foreign bank regulation as a means of harmonizing Canadian/US relations over this specific issue. He cites four potential obstacles to the acceptance of national treatment as a workable and desirable policy: the division of regulatory authority between the federal and state governments in the United States; the limitation on total foreign bank assets in Canada; the 25 per cent limit on foreign ownership; and the regulation-by-rules approach of Canadian authorities.

The second and third obstacles, Chant argues, are not real obstacles to national treatment, and the elimination of these regulations would not effectively alter the status of foreign banks at all. The first and last obstacles are more problematic. While the United States calls for national treatment of its banks engaging in foreign banking, it cannot provide an equivalent offer of national treatment for foreign banks in the United States. As Chant notes, the division of jurisdiction among federal and state governments in the United States makes the concept of national treatment necessarily ambiguous and, consequently, less attractive.

The final and crucial obstacle to the acceptance of the national treatment doctrine is the practice of regulation by rule in Canada. Regulation by rule has permitted a minimum of discretionary action on the part of the banking authorities. However, the success of this approach, in Chant's view, is partly attributable to the highly selective entry requirements that assure only the most solid enterprise access to the chartered bankers' club. He suggests that the maintenance of this approach can be accomplished only by differential treatment of foreign banks. Chant concludes therefore, that Canada will probably retain limitations on foreign ownership, and is unlikely to accept, in full, the national treatment approach.

Comments by Neu

C.R. Neu's commentary begins by asking what the gains are to freer trade in banking services. In light of the usual benefits from freer trade of gains from increased competition and gains from specialization, Neu asks if such gains could be expected by opening domestic markets to foreign banks. He argues that such gains, if they existed, would be minimal. Sophisticated bank clientele would not likely gain since they already have access to the international banking system. Any gains would arise in serving the smaller bank customers. However, local banks have and would likely retain a strong comparative advantage in their local markets. As for the competitive effects, these will also likely be small, owing to the already keen competition among existing banks in the two countries.

Neu places great emphasis on confidence as a factor leading to potentially significant gains from trade. By this he means confidence in either the bank itself or in the banking system to which it belongs. Dependable, solvent banks are able to raise and lend funds more cheaply than less dependable banks, and foreign customers might gain from the more immediate accessibility of these banks. However, Neu argues somewhat paradoxically that freeing banks to operate internationally could endanger this advantage and, further, erode confidence in and the safety of national banking systems and the global banking system. Thus, since national governments bear the burden of guaranteeing the safety of their national banking systems to permit the entry of foreign banks implies an increased burden in continuing to guarantee the soundness of national banking systems. Furthermore, banks faced with the prospects of new markets have an incentive to expand rapidly to gain a market share without giving due consideration to the acquisition of the expertise and information necessary to operate prudently in new foreign markets.

Neu considers that transnational banking could be arranged to reap whatever gains from trade could accrue if banks were enabled to conduct branch banking in foreign countries. The links between the parent bank and its national banking system would be maintained intact. Nevertheless, he suspects that the maintenance of these links would not guarantee the exportability of confidence. He notes further the aversion of some countries – Canada in particular – to the prospects of foreign branch banking and their preference for subsidiary banking. While there are advantages to the requirement

that foreign banks can gain entry to the host country only through a subsidiary, Neu points out that this practice effectively negates any possibility of gains arising from increased confidence.

Finally, Neu considers how the prudent behaviour of banks can be assured. In his view, only the market can assure prudent behaviour and, then, only if the fear of failure or collapse, even for the biggest of the big banks, is present. The problem is that some banks may be too big to fail, and Neu suggests we should consider how to slow down their relative growth and revive in them a fear of the market. The implication of these suggestions is that transnational banking will favour the already large banks at the expense of smaller banks, leading to increased concentration. Restrictions on the geographic scope of banks' operation, Neu argues, is a feasible way of slowing the growth of big banks and of assuring their prudent management. Freer trade in banking services between Canada and the United States may not, it is concluded, be particularly desirable.

Comments by Atkinson

In his comments, Lloyd C. Atkinson contends that Chant paid insufficient attention to the distinctions and regulations involving Canadian-owned as compared to foreign-owned Schedule B banks and those involving Schedule A and Schedule B banks. He notes that the regulations on foreign-owned Schedule B banks may be less constraining than they appear in view of the way in which the Canadian inspector general treats requests for new branches and how asset restrictions are monitored. He also questions whether Schedule A banks are clearly favoured when account is taken of the pressures on them to maintain inefficient, high-cost branches to serve local interests. Finally, Atkinson argues that the principle of national treatment becomes blurred when the requirements and practices of Schedule A and Schedule B banks are closely examined. Thus, for example, Schedule B banks have greater flexibility in managing their reserves and taking advantage of interest-rate changes; they are less obligated to settle reserve deficiencies with the Bank of Canada, they are not obligated to hold receiver-general balances; and they have much greater leeway in managing their foreign currency portfolios.

Cowhey and Aronson on trade in communications and computer services

Cowhey and Aronson analyse shifting Canadian policy in regard to telecommunications and computer services and how Canadian/US trade in these areas influences the direction of policy change. For analytical purposes, they distinguish three industry segments: equipment manufacturing; basic services (communications networks); and 'enhanced' or value-added networks (VANs). They set forth two basic arguments. The first is that Canadian/US trade in telecommunications and computer services will tend to standardize the regulatory structures in both countries (that is, the Canadian regulatory structure will move towards the US model). The second is that the recent Canadian policy of liberalizing regulations of the provision of enhanced services will impact on the competition and regulation in the other two segments.

Cowhey and Aronson set forth a model of the regulatory process in Canada and a description of the behaviour of the actors involved. These include the regulators, producers, and users of telecommunications and computer services. The important assumptions in their model are: federally elected politicians and federal regulatory agencies are treated as a single entity; provincial and local politicians and regulatory authorities are treated also as regulators; and trade and investment in telecommunications and computer services across the border will put regulators under pressure to be more accommodative to foreign as well as domestic firms.

On the basis of their model, they develop a series of hypotheses:

- 1 Regulators respond to users-producers who can best articulate their interests.
- 2 Regulators follow a mini-max rule, which seeks to minimize the maximum welfare loss to any group affected by policy change.
- 3 High-cost producers will pressure for regulatory reform more often than low-cost producers.
- 4 Large, diversified enterprises can make different regulatory bargains than small, undiversified ones.

5 Global firms prefer to operate under standardized or universal rules and regulations (otherwise, they 'shop' for the most advantageous regulatory environment).

6 'Shopping' (by producers and users) has the effect of standardizing regulatory structures.

7 'Smart' shoppers may resist reforms under which the benefits accrue largely to 'ignorant' shoppers.

8 Actors operating in more than one industry segment will push for regulatory reform in that segment where benefits are largest and reform most likely.

They suggest that their model has several implications for Canadian policy:

1 Disputes between large groups will dominate policy debate and direction.

2 Regulators will favour a policy of gradualism with respect to policy change.

3 Linkage between the three segments means there will be 'feed-through' and 'feedback' effects of changes in regulation in one segment and competition in other segments.

4 The policy priorities will fluctuate as interest groups perceive changes in the gains to be made from reform in any given area.

Having set out their model, Cowhey and Aronson proceed to a discussion of the structure of the three industry segments, and policy and regulatory developments in each. Canada has a surplus of trade in communications and a deficit in computer equipment. They note that the Canadian environment is less competitive than the environment in the United States and query why US communications-equipment producers have not voiced much complaint in this regard. As for computers, the Canadian manufacturers have been successful in obtaining substantial protection from US competition. In terms of their model's predictions, Cowhey and Aronson do not expect this situation to persist. The Canadian computer industry consists of diverse and small manufacturers, making it an unruly and difficult

clientele for regulators. Also, they suspect Canadian users of computers will not put up with protection-induced cost-differentials for too long before they clamour for reforms.

In the basic services-communications networks segment, Cowhey and Aronson predict a gradual move towards more competition. They note that competition in this segment is more lively than in European countries, although less so than in the United States. The pressures for competition come from domestic producers lobbying for the 'right of way' to provide long-distance services, which are monopolized under a joint government-phone-companies venture (Telecom). Also, increasing evidence of user-shopping is becoming apparent, as Canadian users route their business through cheaper US networks.

In August 1984, the Canadian government developed a policy of 'free entry' for the value-added networks (VANs) sector. Cowhey and Aronson note that if it were not for some hidden restrictions, free entry into VANs would result in tremendous competitive pressure on other segments. The hidden restrictions are that: producers must use independent transmission facilities and yet the government has been reluctant to authorize any new facilities; and limits have been imposed on the use of US networks as transmission facilities. They view the policy change as a happy medium, giving some flexibility to VANs, but protecting the established telecommunications networks.

Several conclusions are offered. First, the main priority on the regulatory agenda is competition in basic services. The issue has the potential for much conflict and disagreement. Second, the recent decisions on VANs are highly significant in terms of the implications for competition throughout the industry. Third, freer trade in the United States and Canada will force major reform in the regulatory structure in Canada. Finally, the quiet situation in the equipment-producers segment is difficult to understand and may not persist as this segment evolves in both countries.

Comments by Waverman

In his comment, Leonard Waverman questions a number of the assumptions, interpretations, and conclusions in the Cowhey-Aronson paper. He notes that Canadian regulators do not have independent status as in the United States, and that their objective function can be distinguished from that of the politicians in Canada. Also, he points out that Canadian regulatory jurisdictions cannot be so neatly

dichotomized as Cowhey and Aronson suggest. Finally, he is extremely sceptical of the authors' contention that existing changes in US regulatory policies inevitably force similar changes to occur in Canada. The facts do not seem to support this contention.

Waverman takes issue with Cowhey and Aronson's claim that computer equipment is much more costly (5 to 20 per cent) in Canada than in the United States. The tariff rates are similar and relatively low in both countries, so that it is not clear why and if, in fact, such a differential exists. With respect to telecommunications equipment, Waverman notes a number of reasons why the United States is not an important supplier to the Canadian market. These reasons include the relatively small size of the Canadian market, the loss of comparative advantage to Third-World suppliers for basic telephone and related equipment, and the fact that Canadian firms are low-cost producers of PBX and switches and that some of these firms have set up production facilities in the United States.

As for basic services, Waverman argues that provincial control is far more important than federal control, which is contrary to Cowhey and Aronson's assertion. Waverman also suggests that the authors' description of long-distance basic service in Canada has a number of inaccuracies. While agreeing that ways exist for users of long-distance telecommunications within Canada to bypass Canadian regulations by linking with US services, Waverman maintains that the Canadian authorities could effectively limit such practices and thus insulate Canada from changes in US regulatory practices. Again, this differs from Cowhey and Aronson's argument.

Waverman contends that Cowhey and Aronson exaggerate the importance of labour and transmission costs in enhanced services or VANS and thus give a misleading impression of the costs of current Canadian policies. According to Waverman, freer trade in telecommunications and data processing between Canada and the United States would reduce the incentives for bypass within Canada without necessarily forcing a reorganization of other telecommunications markets. In the final analysis, Waverman is more sympathetic to the idea of Canada's seeking and developing its own domestic policies for telecommunications and doing so without large social costs to the country.

Comments by Logan

In his comment, Robert G. Logan stresses the need for and desirability of having business take a more active role in lobbying and informing government about services issues. He sees the Royal Bank initiative for free trade in computer services as one such action, but he is disturbed by the relatively slow response of Canadian authorities in comparison with that of their US counterparts.

Logan further stresses the desirability for governments to consult more often with business on information-trade policy questions. He also suggests that governments need to agree on a focal point for trade in services as they have for trade in goods.

From the perspective of IBM, he notes that the free flow of information is important since IBM is one of its own best customers. IBM's information network interconnects in 130 countries and allows operations in each country to keep up to date, synchronize and organize international operations, and remain internationally competitive. The encouragement of trade in information services may thus have positive employment benefits by providing an environment in which firms can remain competitive by international standards.

Daly on technology transfer and Canada's competitive performance

The issue of Canada's competitive performance in international markets is of particular concern given the country's consistently poor record in comparison with other industrialized countries, especially the United States. In addressing this issue, Daly notes that output levels in Canadian manufacturing are 28 per cent lower than for comparable US industries, and that unit labour costs are 29 per cent higher than for US counterparts. In multilateral comparisons, this places Canada in the second to lowest position. Only the United Kingdom is lower.

Much of the blame for Canada's poor competitive performance is frequently attributed to the high degree of foreign ownership and control of Canadian industry. Daly seeks to dispel this misconception. The results of studies of ownership and performance in Canadian industry in given industries and along several dimensions disclose substantial differences among the average foreign (US) owned and controlled enterprise in Canada and the average Canadian-owned enterprise. While these differences diminish when comparisons are

made for enterprises of the same size, they persist nonetheless and Daly attributes them largely to management practices and technology.

Daly argues that, while technology is certainly an important factor, it should not be considered in isolation from the management techniques and organizational structures of business enterprises. In particular, he suspects the sociological and psychological factors of openness to change, morale, and motivation are important both in accepting and in adapting to technological advance.

In considering the Canadian experience in the development and use of new technology, he stresses that individual firms have the option to make or buy new technology. He draws three conclusions based on the Canadian experience in this regard:

- 1 Most new technology and inventions in use in Canada have originated from foreign sources.
- 2 Technological developments originating in Canada tend to be initially exploited elsewhere than in Canada.
- 3 The rate of diffusion of new technology in Canadian industry is relatively slow.

The first conclusion is not surprising in view of Canada's comparative disadvantage in market size. New technology can be introduced at much lower risk in large markets, which provide more opportunity for economies of scale. Daly also argues that trade barriers in Canada have reduced competition and the incentives and imperatives to adopt and adapt to new technology. Further, Canadian managers are less open to change than their US counterparts, the former being relatively older and less educated than the latter.

Daly considers the proposal that Canada's productivity performance can be improved if more support is given to R&D. Citing Canada's relatively high ratio of R&D expenditures to GDP, he suggests that the availability of R&D per se is not the central problem. He also cites the Japanese example as being inconsistent with the premise of the proposal that R&D is necessary for good economic performance.

Daly notes that present policy prescriptions for Canada's poor economic performance are based on the premise that lack of domestic R&D is the problem. In his view, the problems lie in the use and

diffusion of technology and in the failure of management and organizational structures to translate technical achievements into commercial success and improved performance. His prescriptions are to increase domestic competition to facilitate diffusion, reduce barriers to foreign competitors, reduce bailouts that support the continuation of inefficient management practices, and provide more funding to business schools for management training.

Comments by Moroz

In his comment, Andrew R. Moroz notes that the discovery and commercialization of inventions and the diffusion of technology can have a major impact on the competitiveness of an industry and an economy. He points out that recognition of this fact has resulted in a high priority for technology policy, both in the United States and Canada. He suggests further that the United States and Canada frequently take opposing views on technology policy. Given the role that technology and technological progress play in increasing competitive performance and given the stakes involved, governments will find themselves competing in technology policy, and conflicts may arise over the control of and access to technology.

Moroz draws two lessons from Daly's paper, namely, that Canada's poor competitive performance is not due to any single factor, and that a policy of stimulating R&D alone is not likely to solve the performance problem. He recommends policies of subsidies and tax incentives to stimulate R&D and technological diffusion, funds to support improved informational flows with respect to new developments in technology and management, and, as a key component, trade liberalization. Moroz explicitly recognizes the serious structural adjustments that must be undertaken, and suggests that the policy package contain provisions allowing for an orderly adjustment process using the least painful alternatives.

Comments by Saxonhouse

Gary R. Saxonhouse has several points of contention with Daly's paper. First, he is critical of Daly's presentation of data for the purpose of comparing unit cost and productivity differentials across countries. The problem lies in the cost data, which were converted to US dollar equivalents. Changes in unit costs are supposed to reflect

changes in firm-level efficiency across countries. But the exchange-rate conversion mixes the efficiency consideration with the changes in unit costs, which in turn reflect exchange-rate movements.

In discussing the evidence on ownership and performance in Canada and elsewhere, Daly notes differences in performance between foreign-owned and domestic firms. He ascribes many of these differences to management techniques and organizational structure. Saxonhouse agrees that differences in management-organization may explain differences in performance, but they do not provide a complete or the only explanation. He provides an alternative explanation based on the presence of imperfections in capital markets and differences in relative prices in the host country, both of which may affect firm behaviour and performance.

Saxonhouse is further sceptical of Daly's contention of the importance of organization-management in terms of the wide variability that has been observed in adoption rates for new technology. Saxonhouse argues that the results of studies of the lags-in-adoption of technology are highly suspect and do not provide grounds for Daly's conclusions.

Saxonhouse attaches some importance to Daly's point that many Canadian-originated innovations are exploited elsewhere than in Canada. This might not signal a problem so much as a direction that technology policy might take. Saxonhouse suggests that Canada might have an important role as a technology producer, and that the goal of public policy might then be directed towards reaping whatever gains may be possible in that role.

MAJOR THEMES

A variety of themes emerged from the papers and comments and from the open discussion that took place in each of the workshop sessions. The themes involved both conceptual and empirical issues and the appropriate design and implementation of global and bilateral policies relating to services.

Modeling and analysis of trade and investment in services

Perhaps the two major conceptual issues that emerged involve the robustness of the principle of comparative advantage as applied to trade and investment in services and the appropriateness of the

assumption of competition. On strictly logical grounds, Deardorff's analysis suggests that comparative advantage can be applied to services used in conjunction with international trade in goods and in the case of factors of production being mobile between countries. However, when there were 'absent' (management) factors or differences in technology, cases could be constructed to show that comparative advantage might be violated in the sense that trade did not conform to relative differences in autarky prices. While Deardorff's discussants took issue with his analysis of these latter cases, it is not clear that they overturned his results. Thus, it seems fair to conclude that the principle of comparative advantage applies in a strict sense to a wide spectrum of trade and investment in goods and services, but there can be exceptions.

The search for the robustness of the principle of comparative advantage as applied to services can be justified as a means of providing a rigorous foundation for analysing important issues. At the same time, it is important to stress the welfare considerations involved. That is, to the extent that trade and investment in services are not subject to government-imposed barriers or monopolistic restrictions, the traditional welfare benefits of freedom of trade and factor movements will be realized. The same normative considerations that apply to the liberalization of trade in goods thus apply to services.

It should be noted, however, that if there are significant departures from competition because of monopolistic influences, the competitive model and the associated welfare implications may have to be revised. Indeed, this is one of the main points made in the analysis by Grossman and Shapiro of trade in technological services. There is a case for government intervention under conditions of imperfect competition when this intervention might enable a country to capture benefits that might otherwise accrue to other countries. While this possibility exists, it may be another matter altogether, however, for a government to recognize it, design the appropriate policy, and at the same time avoid foreign retaliation. Furthermore, it might be argued that government policies cause distortions in many realistic situations. Finally, there is a question of how important, in fact, are the departures from competition, even in cases where multinational enterprises are the focus of analysis and policy. The question, therefore, is how far to go when adapting the conventional framework

of analysis to take imperfect competition into account in dealing with services.

Data deficiencies and analysis

It is striking how limited the data on services are when compared to the amount and detail involving goods. Efforts are under way to remedy the situation, but there are many problems to overcome. For example, the domestic classifications used to record services by industry of origin or by type of expenditure do not carry over directly to international transactions. Also, many services are not explicitly traded between countries, but arise from the operations of foreign affiliates of multinational corporations.

Given the existing data, some general conclusions nonetheless suggest themselves. Thus, trade in goods is several times more important than trade in services. Of the various categories of trade in services, transportation, travel, and tourism are much larger than other private business services, which include many of the service activities that figure importantly in the US initiative for liberalization. It also appears that the United States is by no means dominant in world trade in services. Finally, the services income generated by US foreign affiliates located in host countries is much greater than the trade in services between the United States and other countries.

The deficiencies in the existing data on trade in services apply also to the barriers that impede this trade and inhibit foreign direct investment. This makes it especially difficult to assess the costs and benefits of restrictions that inhibit trade and investment in services. But given the relatively small size of traded services in total and business-related services in particular, it is not obvious that liberalization has all that much to offer in terms of welfare gains. This view may be overly pessimistic, however, because it does not take into account the critical importance of the present information revolution and the efforts by many countries to shield themselves from foreign competition. If this is true, it might then be argued that the information-producing and consuming industries should be singled out for special attention in maintaining open markets, rather than proceeding more broadly.

If and how to pursue negotiations on services

When one looks at the world trading system, it is evident that there are a number of important goods-producing sectors that have been and continue to be prime objects for protection. These sectors include agriculture, textiles and clothing, footwear, iron and steel, consumer electronic products, automobiles, and shipbuilding. The question is whether it would be desirable to tackle first the protection that has been afforded these sectors before turning to services. The related question is, that if negotiations involving services are to be pursued in any case, should this be done within the framework of the GATT or in a more selective sectoral and/or bilateral context.

There is a clear difference in views on the desirability and urgency of pursuing negotiations on services. Observers like Grey are sceptical on the grounds that the GATT system is in disarray and that there are many more pressing issues of protectionism and especially macropolicy that deserve attention. He argues, further, that if anything is to be done, it should be on a sectoral basis. The more optimistic, forward-looking, and pragmatic view is that it is important to move on a variety of fronts. In particular, as Feketekuty argues, the long-run objective should be to bring services under the GATT umbrella. This should be done in as flexible a manner as possible with respect to general rules as compared to sectoral agreements, and with the aim of adopting the principle of conditionality in order to reduce the incentives for free riders.

Feketekuty notes that services have become 'fully embedded in the US trade policy process', and that efforts to promote liberalization will be confined to traded services and not to foreign direct investment in service industries. This is an important statement since it means that the United States will continue to pursue the issue forcefully in international discussions and negotiations. What this will amount to is not yet clear, however, since the comprehensiveness of any agreements covering trade services remains to be defined. The US position may ultimately serve to strengthen the GATT mechanism, but the benefits that may accrue to the United States and other countries seem limited in comparison to what might be gained if existing nontariff protection could be reduced significantly and restrictions on foreign direct investment in host countries could be liberalized.

The papers and discussion relating to banking and to computer services and telecommunications raised a number of issues of bilateral concern. Perhaps the dominant one is whether Canada can and should follow a separate national policy for its service industries. In the case of banking, the tradition in Canada has historically been regulation by rule, with a much tighter degree of control than in the United States. This has meant that Canada has elected not to follow the principle of national treatment with respect to foreign banks operating in Canada. Canada's banking policy can be justified in part by a desire to maintain control over its system of money and credit in order to enhance domestic stability and confidence. Yet in a world in which financial capital markets are becoming increasingly integrated, there are obviously important constraints on a nation's ability to insulate itself from external forces and to monitor and shape the performance of its domestic and foreign-owned financial institutions. Also, from a Canadian perspective, the fact that some of its major banks have a significant presence in banking and financial markets in the United States suggests that Canada cannot successfully follow, for any length of time, domestic policies that are inimical to US banking interests.

Canada's ability to regulate its computer services and telecommunications industries is also a matter of debate. As with banking, there are some important public goods aspects involved in regulation. But in these industries a very rapid rate of technological change is occurring, and at the same time a pronounced shift in US policies in favour of deregulation. Given the differences in size between Canada and the United States and the fairly open market for bilateral trade that exists in many sectors, it can be argued that Canadian regulatory policies may be moved towards the more liberal US regulatory environment. Canada's ability to conduct an independent policy in these industries may be limited therefore. This is the position that is taken in the paper by Cowhey and Aronson. However, as Waverman notes, this position may be an oversimplification since it does not reflect fully the complexities of both federal and provincial regulatory policies and practices in Canada. A case can be made for Canadian regulation of these sectors similar to that used in banking. Presumably the regulations can be designed and implemented to achieve compliance. But there is no

telling how costly this may be to Canada and if firms will find a way around the regulations.

The banking, computer services, and telecommunications industries are important and interesting examples of how national policies impact on domestic and foreign-owned firms in Canada and the United States. In these instances, there may be grounds for government intervention to limit foreign investment or otherwise constrain the operations of foreign affiliates present in the country. But the question of the costs and benefits of the government intervention always arises, and, in the case of small countries like Canada, with fairly open trade and financial markets, whether the behaviour of domestic and foreign firms may undermine the objective of the intervention.

Technology and Canada's productivity performance

The final theme that deserves mention relates to the observation of Canada's relatively poor productivity performance, at least by international standards, the factors that may account for this performance, and how the situation might be remedied. This is a complex set of issues, but the paper by Daly and the ensuing discussion bring out the importance of access to and the effective utilization of technology by firms. Daly places a great deal of emphasis on Canadian management and managerial practices and initiatives, whereas, in his comment, Saxonhouse stresses the importance of existing market prices and distortions to which firms respond. Many of these distortions, as mentioned earlier, stem from government policies that serve to limit rather than foster competitive behaviour. If this view is correct, it suggests, for example, that government encouragement of research and development may not necessarily have a large payoff if other policies exist that inhibit the incentives of firms to perform efficiently.

CONCLUSION

The preceding discussion does not do justice to the important issues involving trade and investment in services that are dealt with in the following papers and discussants' comments. The issues are interesting and often complex. But the underlying objective of it all is to enhance social benefit by promoting open markets for goods,

services, and foreign direct investment. This may not always be possible, and indeed, in certain circumstances, some observers would claim it may not be desirable. In any case, the issues cannot be resolved without careful analysis and discussion. It is hoped, therefore, that the ensuing papers and comments will be useful in enhancing the understanding and treatment of the issues.

Comparative advantage and international trade and investment in services

Alan V. Deardorff

University of Michigan

My purpose in this paper is to evaluate the theoretical validity of the principle of comparative advantage as it applies to international trade in services. I will focus only on the positive issue of whether trade, if undistorted by policy, will conform to a pattern that is explainable by comparative advantage, and I will not treat, except tangentially, the welfare effects of such trade. Even so, as I will explain in a moment, it is probably impossible to provide a conclusive answer to the question of whether services trade follows comparative advantage. Instead, I will confine my attention to two distinctive characteristics of trade in services, and use these as the basis for theoretical models. Within these models I will show that, while there exist ways of defining comparative advantage and trade such that the principle of comparative advantage holds quite nicely, there is nonetheless at least one case in which trade will appear to violate the principle. Thus it is not clear that comparative advantage is necessarily the most useful criterion for explaining international trade in services.

The difficulty that arises in evaluating trade in services – and this applies to the problem in both its positive and normative aspects – is the lack of consensus as to what constitute services. Most can agree on a list of real-world activities that are services, and with some exceptions there is no difficulty in distinguishing the items on the list from goods. But it is harder to identify what it is economically that distinguishes all goods from all services, and then to use this difference as the basis for theoretical analysis.

At one extreme, economists are accustomed to lumping all goods and services together, assuming implicitly that there are no

economically meaningful differences between them. It then follows of course that what is said of goods applies equally well to services, and in particular that the principle of comparative advantage is as valid for services as for goods. But this follows from the failure to distinguish between them in the first place, and it proves nothing. The opportunity remains for someone to point out a difference between goods and services and to object that this difference has not been taken into account. Without explicitly considering models of all possible characteristics that might distinguish goods and services, as well as all possible combinations thereof, one cannot claim to have proved one's case conclusively. Since there is no end to the list of characteristics that might be advanced as distinguishing at least some goods and services, I conclude that the issue of this paper is one that can never be resolved once and for all.

On the other hand, just as we often know intuitively which things are goods and which are services, we also know intuitively that some of the differences between goods and services are unimportant for the issue of comparative advantage. Hindley and Smith (1984) illustrate this in the following comment on the view that services have been ignored in theories of comparative advantage:

The underlying premise is that services are different from goods, which may indeed be so. But a bunch of flowers and a ton of coal and a jet airliner are very different things also. It may be true that no economist has discussed international trade in brussels sprouts or used that vegetable to illustrate comparative advantage. That surely does not raise any substantial question as to whether the conceptual and theoretical apparatus of comparative cost theory is applicable to brussels sprouts.

Even this, of course, presumes our agreement that the brussels sprout is just another vegetable. Were it known, instead, that brussels sprouts are addictive, or that their production fouls the environment, or that they are valued primarily as collectables, then we might recognize that some of the postulates that are normally assumed in proving comparative advantage are violated by brussels sprouts, and we would not be so sanguine.

Thus the only way to proceed on an issue like this, I believe, is piecemeal. Select, one at a time, various characteristics that distinguish services from goods, characteristics that intuition suggests *may* have a bearing on trade and comparative advantage. Build a model that can capture these characteristics and examine its implications. Finally, base one's conclusion, first, on a judgement as to the empirical relevance of those characteristics, if any, that do seem to undermine comparative advantage, and second, on the comprehensiveness of the list of characteristics that do not. In all, one must keep an open mind: there always remains the possibility that some other characteristic, so far unexamined, will be found to overturn the results.

In subsequent sections, then, I will follow this approach, examining in theoretical terms three separate characteristics that seem important for at least a portion of the international trade in services. The sections are largely independent, since different techniques turn out to be useful in each. I will try only at the end to tie them together in some fashion.

The first characteristic that I will consider is also the least general: the fact that traded services often arise as a byproduct of trade in goods. While trade services, such as transportation, cargo insurance, and trade financing, are not the only kind of services that are traded, there is reason to think that they fail to satisfy one of the standard assumptions of trade theory, and thus may make a re-examination of comparative advantage worthwhile. It turns out that comparative advantage continues to work quite well to explain such trade, but the exercise is nonetheless fruitful in providing other insights.

In the next section, I turn to another characteristic that is often regarded as more general, and also more likely to transcend comparative advantage. This is the fact that trade in services frequently requires, or is at least accompanied by, international direct investment. If comparative advantage explains only trade in goods, and if trade in services is really a form of trade in the factors of production, then one might question the relevance of comparative advantage for explaining trade in services. It turns out, however, that international factor movements are just as much the creatures of comparative advantage as is trade in goods. This is implicit in some of the theoretical writings on comparative advantage, and can be made explicit quite easily. Thus if services trade were really just a

disguised form of international factor movement, it would still be determined by the principle of comparative advantage.

However, it is my view that the characterization of services trade as factor trade is overly simple and perhaps misleading. In the last section, therefore, I will suggest an alternative interpretation in which services are distinct from goods in terms of the location requirements of production. Loosely following Hill (1977), I will assume that while goods can be produced elsewhere from where they are consumed, services cannot. In contrast, however, and to make trade in services (as distinct from factors) possible in these circumstances, I will also assume that production of services is possible even though some of the factors of production from which they are produced are not present but instead make their contribution from a distance, perhaps even from a different country.

To formalize this concept, I look at a simple $2 \times 2 \times 2$ model in which one of the sectors is identified as producing a service. The labour in this sector can produce only for domestic demand, but the second input – call it management – can be provided from abroad.¹ If we think of the ownership of the firm as abiding with management, then it is natural to think of the firm as exporting the service, even though the actual production takes place within the importing country using local labour. Since management itself does not move, one would not observe international investment occurring here, except perhaps if one were to infer such investment from the repatriation of earnings that are necessary to pay the managers at home. Furthermore, it turns out that, depending on the factor intensities of production in the two sectors, one can easily get a case in which the service is exported from a country in which it would have been relatively expensive in autarky, thus violating comparative advantage.

Before beginning, I should mention one characteristic of some services trade that I will not consider. I will not look at any models of imperfect competition, and even in the last section, where I model what might be viewed as multinational corporations, I continue to assume that these corporations behave competitively. My reason for this is twofold. First, I wish to give comparative advantage a fair chance of working, and existing models of trade, even in goods, have not established that comparative advantage is descriptively correct for all of the possible imperfectly competitive market structures. Presumably, if comparative advantage has difficulty in my

competitive model, as it does in the last section, then it would have no less difficulty in a model of imperfect competition.

Second, while it is true that many of the multinationals that deal in services are too large to be regarded as competitive, this is equally true of those that deal in goods. Thus it is hard to see that imperfect competition is an identifying characteristic of trade in services per se. With that in mind, I prefer to look at the simplest models that do incorporate such identifying characteristics, and for this the competitive framework seems appropriate.

TRADE IN TRADE SERVICES

Not all services are rendered directly to consumers. Many services are intermediate inputs to production, and some are inputs to other activities such as trade. Indeed, trade in goods inevitably requires that goods be moved from one country to another, and the provision of that transportation is a service. In the modern world, other services too are used by traders, such as cargo insurance, trade financing, and legal help in dealing with different countries' regulations. Thus one can say that trade in goods constitutes a source of demand for a variety of services that I will call trade services.²

Now these trade services are not themselves inevitably traded. Exporters and importers could, if they wished, deal only with transporters, insurers, banks, and lawyers from their home countries. But it is also natural for traders to be aware of the availability of these services from other countries, and thus one might expect trade in trade services to arise earlier in history than trade in services of other kinds and for other uses. Thus trade in trade services, if it is distinct at all from other forms of service trade, seems worthy of examination.

Furthermore, trade in trade services does have one very special property that distinguishes it from other forms of trade: the demand for it arises solely from other trade. Why is this important for our discussion of comparative advantage?

A first reason is that comparative advantage is customarily measured in terms of autarky prices. Yet trade services by definition are not demanded in autarky, and therefore their autarky prices do not exist. Thus we must look elsewhere for an indicator of comparative advantage in trade services, and this alone makes them of some interest. One possibility, if the services are produced using factors of production that have well-defined autarky prices, would be

to measure comparative advantage in terms of their minimum costs of production at autarky factor prices.³ Yet even this may be suspect, since the autarky factor prices in no way reflect the demands for them that may arise when they are used to produce trade services.

A second reason is that trade services violate an assumption that is often made in trade theory, and to the extent that demonstrations of comparative advantage rest on that assumption, they need at least to be reconsidered. The assumption in question is that demand conditions are identical across countries; that is, that faced with identical prices consumers in different countries will demand goods in identical proportions. This assumption is sometimes used in proofs of the Heckscher-Ohlin theorem, and when it is not, differences in demand are incorporated in comparisons of relative autarky prices. But as just noted, autarky prices are not obviously available in the case of trade services.

There is a final problem that would seem on the face of it to cause problems: trade in trade services itself is not well defined. We are not accustomed in trade theory to worrying about where, in the process of trade in a good, the ownership of that good changes hands. But in defining trade in trade services this may make a difference. Consider, for example, the case of a good that is sold by a domestic exporter to a foreign importer, and that must be transported from one to the other. Suppose further that the transportation service is provided by a firm based in the importing country.⁴ If that transportation is purchased by the importing firm, then the transaction involves no trade in transportation services. But if it is purchased by the exporting firm, our country will be regarded as importing these services. The actual production that takes place, including the production of the transportation service, is the same in both cases, but the recording of how much trade has occurred is quite different. Clearly there are similar problems whenever a trade service is provided, since there are always two parties to the goods-trade transaction and either may be the demander of the service.

What difference could all of this make for comparative advantage? A couple of interesting possibilities suggest themselves.

Consider, for example, a country with a cost advantage in providing transportation services. By the usual argument of comparative costs, this country should become a net provider of these services to the world, once trade is allowed. Suppose however that the country is

very remote from world markets, and that as a result it is also an unusually great demander of transportation services, once it enters into trade. We may then find it being an importer of transportation, in spite of its comparative cost advantage. Note too that the country's distance from world markets will not be reflected in its autarky costs of transportation, as would be the case if it had an unusual demand for a good or factor instead, since in autarky its demand for transportation is not revealed to any market.

A second difficulty that might be expected to arise from trade services has to do with the effect that restrictions on trade in services may have on patterns of trade in goods. Suppose, for example, that a country has a comparative advantage in a particular good that happens to require a large dose of some trade service, say insurance, if it is to be traded. This in itself need not interfere with its exporting the good, so long as all countries pay the same price for trade insurance. But suppose instead that trade in insurance is not permitted and that the country has a strong comparative disadvantage in providing this service. Then the cost to it of exporting, should it be required to insure its trade itself, could be prohibitive of its exporting the good at all. Thus it appears that acknowledging the existence of trade services in a model of trade in goods may alter what we can say even about the latter.

In fact, however, trade in trade services does not make as much difference for comparative advantage as all of this suggests. To see this, I introduce the following formal model.

Consider a world of n countries and m goods and let there be also s services that will be useful only if there is trade in goods. In vectors of appropriate lengths, and omitting implicit country superscripts, let X be a particular country's outputs of goods, C its final demands for these goods, and thus $T = X - C$ its net exports of goods. Similarly, let S be the trade services it produces, U the trade services that it uses in the course of trade, and $V = S - U$ its net exports of trade services.

In order to characterize the technology of production and trade, I must first define the physical meaning of trade, and as I have done before in Deardorff (1980) I will make use of the convenient fiction of a single world port. That is, suppose that there exists a single point on the globe through which all trade must pass. Further, to resolve the ambiguity mentioned above in the definition of trade in trade services, I will assume that each country's own traders are responsible for

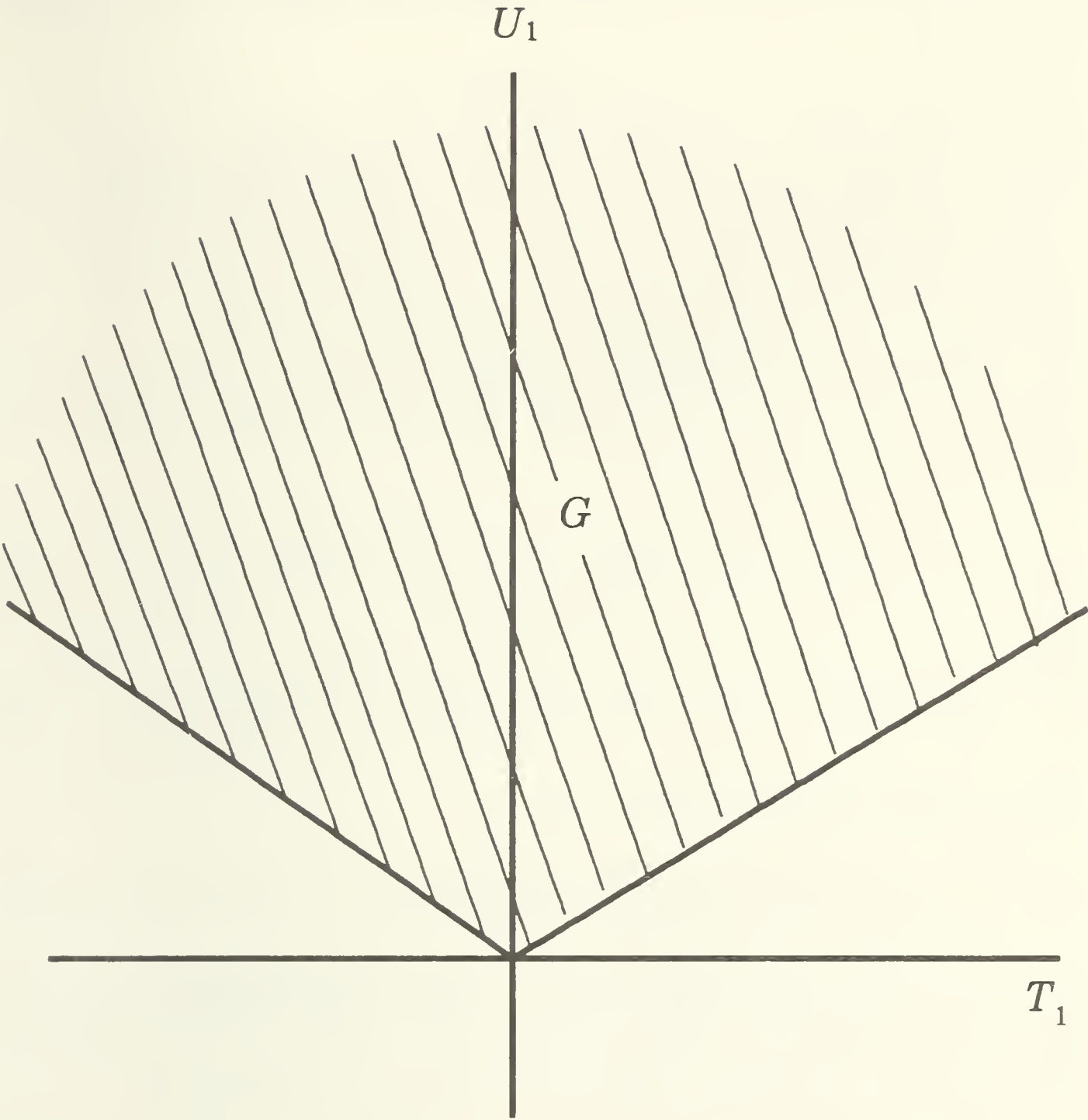
getting its goods to and from the world port, so that if a foreigner provides trade services between a country and the port, this will be regarded as imports of those services.⁵ These assumptions are not as restrictive as they seem, as I argued in the appendix to Deardorff (1980).

Technology can now be defined quite simply. For production, let $F = \{(X, S)\}$ be the set of all feasible outputs of goods and services that can be produced by a country given its technology and factor endowments. It is a production possibility set of the usual sort, and it admits negative values for elements of X , representing the net use of goods as intermediate inputs. Only non-negative values of S are in the set, however, since the services here are useful in trade only, and not in domestic production. The manner in which they may be used is described by another set, $G = \{(T, U)\}$, the set of all possible vectors of net trade in goods and (non-negative) vectors of trade services used. If a particular service, U_1 , were required in fixed proportion to the amount of trade in a particular good, T_1 , for example, then a cross-section of the set G would be as indicated in Figure 1. That is, U_1 must be at least as great as the appropriate constant times the absolute value of T_1 . In general, of course, more complicated shapes are possible, and I assume only sufficient boundedness on the technology to make the relevant maximization problems possess solutions. These sets, F and G , may differ in general from country to country.

I turn now to characterization of equilibria, making such assumptions, familiar in trade theory, as perfect competition, the weak axiom of revealed preference, profit maximization, and balanced trade. I will consider only three types of equilibrium: autarky, in which there is no trade in either goods or services; free trade, in both goods and services; and what I will call semi-autarky, in which there is free trade in goods but no trade at all in services, so that, for example, each country's own transportation firms must move its exports to the port and its imports from the port. More general cases of nonprohibitive tariffs and other restrictions on the two kinds of trade could easily be allowed with additional notation.

An autarky equilibrium consists of vectors of prices of goods, p^a , prices of services, q^a , and outputs of goods, X^a , which are feasible to

FIGURE 1



produce, are demanded by consumers facing these prices, and maximize the value of the country's output:

$$p^a X^a \geq p^a X + q^a S \text{ for all } (X, S) \in F. \tag{1}$$

Note that, while the output of trade services is zero in autarky equilibrium, we can still speak of equilibrium prices for these services as long as these are prices at which profit-maximizing producers of services would be content not to produce. However, since negative values of S are excluded from F , this is likely to mean that these prices

are not unique. Indeed, for any equilibrium that satisfies (1), any other prices of services not greater than q^a will also be an autarky equilibrium.

A free-trade equilibrium is somewhat more involved. It consists, for a given country, of both domestic and world prices, p^d and p^w , the latter being the prices of goods at the international port, together with world prices of services, q^w , as well. In addition, there are quantities of goods produced and consumed, X^f and C^f respectively, and quantities of services produced and used, S^f and U^f . To be an equilibrium, all of these quantities must be feasible, the goods consumed must be willingly demanded at the prices p^d , and production and trade must yield as great a value as any other available opportunity. Thus

$$p^d X^f + q^w S^f \geq p^d X + q^w S \text{ for all } (X, S) \in F. \quad (2)$$

and

$$(p^w - p^d)T^f - q^w U^f \geq (p^w - p^d)T - q^w U \text{ for all } (T, U) \in G. \quad (3)$$

Finally, I require balanced trade:

$$p^w T^f + q^w V^f = 0. \quad (4)$$

To complete the specification of the free-trade equilibrium, I would need the requirement that world markets clear for both goods and services. I would also note that world prices of goods and services are the same for all countries, while domestic prices need not be.

A semi-autarky equilibrium, as described above, requires essentially the same conditions as (2), (3), and (4), though in this case the quantities of services produced and used, call them S^s and U^s , must be the same, and the prices of services, p^s , can vary across countries. I will not bother to write down the analogous conditions.

I am now in a position to examine the role of comparative advantage in these equilibria. As in Deardorff (1980), the crucial relationship involves the value of trade at autarky prices. Since this value is the inner product of the vector of net trade with the vector of autarky prices, its sign turns out to give us various correlations

between autarky prices and trade. And it is easy to show, much as in Deardorff (1980), that

$$p^a T^f + q^a V^f \leq 0. \quad (5)$$

To see this, first note that

$$\begin{aligned} p^d C^a &= p^d X^a \\ &\leq p^d X^f + q^w S^f \\ &\leq p^d X^f + q^w S^f + [(p^w - p^d) T^f - q^w U^f] \\ &= p^d C^f + p^w T^f + q^w V^f \\ &= p^d C^f \end{aligned} \quad (6)$$

where the first inequality follows from (2), the second inequality follows from (3) using $T=U=0$ on the right-hand side of (3), and the last two equalities use the definitions, $T=X-C$ and $V=S-U$, and equation (4). Relation (6) says that free-trade consumption is revealed preferred to autarky consumption, and thus the weak axiom of revealed preference implies that

$$p^a C^a \leq p^a C^f. \quad (7)$$

Finally, the autarky value of trade can be evaluated as follows:

$$\begin{aligned} p^a T^f + q^a V^f &= p^a X^f + q^a S^f - p^a C^f - q^a U^f \\ &\leq p^a X^a - p^a C^f - q^a U^f \\ &= p^a C^a - p^a C^f - q^a U^f \\ &\leq -q^a U^f \\ &\leq 0 \end{aligned} \quad (8)$$

where the first inequality follows from (1), the second from (7), and the last from the fact that both q and U must be non-negative vectors. This completes the proof of (5).

The inequality in (5), then, establishes that the principle of comparative advantage holds in this model of trade in both goods and trade services. That is, it must be true on average that the goods and services a country exports must be worth less to it in autarky than the goods and services it imports. Of course, this average relationship permits individual goods and services to be traded in ways that seem

contrary to comparative advantage, and thus some examples such as those I discussed above are possible. But there is nothing special about services in this respect: similar examples can be found also for trade in goods alone, as I showed in Deardorff (1979). Thus it seems that this particular characteristic of trade in services – the fact that much of it is demanded only as a byproduct of trade in goods – does not after all undermine the usual result of comparative advantage.

There is, however, more that one can say in this particular model. First, recall that the autarky prices of services that appear in (5) are to a large extent arbitrary. Given any prices for which (2) holds, (2) will also hold if these prices are replaced by prices of services that are closer to zero, and even if they are replaced by zero itself. Thus it follows as a corollary to (5) that

$$p^a T^f \leq 0. \quad (9)$$

This looks exactly like the traditional result from a model without services, but it applies to this model in which the trade in goods that is included in T is only a part of the trade that is going on. Thus the principle of comparative advantage, it turns out, applies to trade in goods alone, even when trade services are also being traded.

There is yet another corollary that follows in turn from (9). It is possible in general for a country to exchange goods for services and vice versa. But in a model like this, in which all services are trade services, it is impossible for there to be net trade in just one good in exchange for services. For if there were, then $p^a T^f$ would be positive for the country that exports the good, thus violating (9).

Finally, consider what would happen in a semi-autarky equilibrium in which there is trade in goods but not in services. All of the conditions used above still apply, with the superscript ' f ' replaced by ' s '. Thus the result in (5) continues to hold in a semi-autarky equilibrium, and

$$p^a T^s \leq 0 \quad (10)$$

since V^s is zero by definition. Thus comparative advantage continues to explain trade in goods, even if trade in traded services is not permitted. Evidently, my example above, showing how prohibition of trade in services might undermine a country's comparative advantage

in a good that it finds expensive to trade, indicates only how trade can be reduced or eliminated by this phenomenon, but not that its pattern can be reversed.⁶

To conclude this section, then, allowing for trade in trade services leads to some interesting possibilities as far as the trade in particular goods and services may be concerned, but it does not in any way undermine the principle of comparative advantage as the general indicator of the patterns of trade that can take place. On the contrary, the principle is strengthened in a sense, for it now applies even to the subcategory of trade in goods alone, as well as to trade in goods and services together.

SERVICES TRADE AS INTERNATIONAL FACTOR MOVEMENTS

A notable feature of much of the trade in services is that it may require a *presence*, on the part of the exporting firm, within the importing country. This means that some employees of the exporting firm may have to be present to administer, market, or oversee the service. Or it may mean the need to establish a physical plant in which or from which the service can be provided in the importing country. Either way, this suggests the need for labour, capital, or both to move from the exporting country to the importing country in order to provide the service. I will argue in the next section that such factor movements are not in fact an inevitable feature of trade in services, but they certainly can occur in conjunction with it and have been identified by many as a crucial aspect of services trade. Therefore, it seems sensible at this point to ask if factor movements do give reason to doubt the validity of comparative advantage as it applies to services.

The answer, fortunately, is easily found. Quite independently of whether they involve services or not, international factor movements fit neatly into the theory of comparative advantage. It is true, of course, that factor movements can reduce – even to zero – the amount of trade in goods that occurs in response to comparative advantage. But it is also true that trade in goods and factors together conforms to the principle of comparative advantage in the usual sense that those goods and factors that are exported will, on average, have been cheaper in autarky than those that are imported.

It is unnecessary to prove this result here since it has appeared elsewhere. In my own article (1980), this result was implicit, since the

goods in that model were defined to include 'all final goods, intermediate goods, and services of primary factors of production', any or all of which could be traded or nontraded. The result has also been made explicit by Ethier and Svensson (1983) as one of many theorems of trade theory that they extend to a model with factor mobility.

Thus, to observe that trade in services often involves international direct investment, for example, in no way suggests that it should therefore fail to conform to comparative advantage. On the contrary, if the export of certain services requires the export of capital, then one would expect the countries that export these services to be also those in which capital is relatively cheap. Similarly, if other services require the movement of certain types of labour in order for them to be traded, then those countries where this labour is readily available will be the most likely to export them.

As always in general discussions of trade patterns, one can find cases in which particular goods, services, or factors appear to be traded perversely. This is usually either a result of the greater importance of some other determinant of relative costs, or the result of some form of complementarity with another good or service. For example, suppose that a service relies heavily on both skilled and unskilled labour, and is relatively expensive in the United States because the scarcity of the latter outweighs the abundance of the former. If trade in the service requires that only skilled labour move internationally, the necessary unskilled labour being taken from the local labour market in the importing country, then one could easily find the service being exported by the United States in spite of its relatively high autarky cost here. In this example, the trade in the service alone appears to run counter to comparative advantage, but the trade in goods and services together, including the trade in skilled labour, would not. A proper evaluation of comparative advantage requires only that we succeed in taking into account all of the trade that is actually taking place.

On the other hand, this example is very similar to the situation that I will describe in the next section. For suppose that the skilled labour just mentioned could make its contribution to production without actually moving to the country to which the service is being exported. Trade in the service would continue to occur but trade in skilled labour would not. Since the trade in the service is what appeared perverse, we would then be left with an apparent violation of

comparative advantage without any offsetting trade in factors. Thus it may not be movement of factors internationally, but rather the possibility that they need not move in order to make a contribution, that causes the greatest difficulty for the principle of comparative advantage as it applies to services. This is what I will examine more formally in the next section.

SERVICE TRADE WITH ABSENT FACTORS

I noted above the tendency for service trade to require the presence of the service exporting firm in the importing country. This is a general property of services trade, especially if one follows Hill (1977) in defining services as marketable activities in which production must take place in the presence of the demander. Hill argues that services in general cause a change in either the person or the property of the consumer of the service. If the change is in a person, then obviously that person must be present during production, but even if the change is in some good owned by the consumer, the need to maintain that ownership intact during whatever transformation occurs makes it unlikely that production can take place too far removed from the consumer. In any case, I will from now on let this property be one of the defining characteristics of a service: that its production must take place in the same location (or at least the same country) as is occupied by the person or firm that purchases it.

In the previous section, this characteristic led to the association of services trade with international factor movements, on the assumption that a firm can produce in a foreign country only if it also moves some of its factors of production there. But this is not a good assumption, as recent observation of the behaviour of multinational corporations makes clear. To produce in a foreign country, a firm needs to employ factors of production there. But these need not be factors that it brought from its home country; they can be hired on local factor markets. Indeed for many years trade theorists felt that we had covered the subject of multinational enterprises implicitly in our studies of international capital movements, and only recently have we explicitly recognized that such enterprises typically organize much of their financial and other activities locally, in the same countries where they produce. Furthermore, even when they do raise funds on international capital markets, their decisions are truly

international, and have little to do with where their home offices are located.

Thus a firm that wishes to export a service may do so by setting up a branch in a foreign country, hiring local labour, and financing any necessary local capital expenditures within the local market of the foreign country as well. If it does all of this, one may then wonder what it is that is actually being exported. The answer in general is that there is some other factor that contributes to the profitability of the firm. This may be a unique method of management, a proprietary product or brand name, or a technique of production to which only it has access. In any case, if the export of the service is truly an export at all, there must be something that is provided by the home office of the firm that contributes to its profitability. Otherwise, it would pay its entire revenue to local factors, and no international transactions would take place at all.

To capture this idea I will follow Markusen (1984) and Helpman (1984) in their models of multinational corporations, and assume that production of services requires inputs of at least some factors that need not be physically present at the same location where production takes place. These 'absent factors' can encompass all of the contributions described above that a multinational can make to its subsidiaries, but for ease of reference I will, from now on, simply call them management.

Markusen and Helpman both go well beyond what I want to do here, in their pursuit of explanations for multinationals. For one thing, they make no distinction between goods and services, and their multinationals may implicitly produce both. In addition, they assume that what I am calling absent factors are also, in a sense, public goods within the firm, which is able to provide services to additional numbers of subsidiaries without additional effort in the home office. This in turn leads them also to assume that multinationals are large and noncompetitive. I will make neither of these assumptions, since I do not view imperfect competition as more likely for services than for goods, and I want therefore to remain in an environment where small competitive firms are possible. Thus my factor, management, is just like any other factor in a neoclassical production function, except that it need not be located where production of services takes place.

Notice, then, the dichotomy that I am assuming in the technologies of goods and services. Production of goods, I assume, requires the

simultaneous presence of all factors of production, but does not require the presence of those who will consume or otherwise use the goods once they are produced. Services, on the other hand, do require the presence of consumers, but do not require the presence of all factors of production. Naturally, real-world activities are not so clearly separated. There are services in which there is no absent factor contribution, but these can be dispensed with as unable to enter international trade. There are also goods that can make use of absent factors, and this could complicate the analysis a bit since their location of production might then be indeterminant. But it will be convenient here to consider only the two extremes.

In fact, what seems to be crucial for the results that follow is not that some factors can be absent, but rather that some factors must be present, and that for services this presence must be in the same location as the consumer of the service. Since goods can be transported, it is hard to think of examples of exports of goods for which some factor of production must be present in the importing country.⁷

To show what this view of goods and services can imply for comparative advantage, I turn now to a very simple model of international trade that incorporates this view. The model is like the standard textbook Heckscher-Ohlin (H-O) trade model of two goods, two factors, and two countries. However, in this case I make one of the goods a service, and require that it be produced where it is consumed. Further, as just explained, I call one of the two factors of production management, and let it contribute to services production *in absentia*. Otherwise, the assumptions of the model are exactly those of the H-O model.

In autarky this model looks exactly like the H-O model. Since autarky constrains all factors, production, and consumption to locate within the same closed country, the special location requirements of services are unimportant. Thus, for example, the autarky relative price of the service will depend on demand for the service relative to the good, the endowments of the two factors, labour and management, and the intensities with which these two factors are required in production of the good and the service. In particular, comparing two countries, A and B, I will assume that the autarky relative price of the service is lower in Country A than in Country B. With identical homothetic demands and identical technologies, this could either

mean that services are management-intensive and that Country A has a relative abundance of management, or that services are labour-intensive and A is well endowed with labour. Alternatively, the price difference could result from differences in technology. In any case, Country A has a comparative advantage in services by the usual criterion of relative autarky prices, and we wish to see if this advantage is reflected in its trade, once trade is allowed.

In the H-O model, free trade equates the prices of traded goods across countries. This in turn equates factor prices across countries as well, if the other assumptions of the factor-price-equalization theorem are satisfied, in particular if technologies are identical and if both goods are produced in both countries. In the model here, things are different but the outcome may be the same.

Free trade directly equates the price, across countries, of only the good, not the service. If the producer of a service were to observe a higher price abroad than at home, that in itself would not induce it to export, since to serve the foreign market it must produce there and must employ at least some local factors. The fact that it can produce more cheaply at home using domestic factors is of no help, since those factors cannot in general be used for production abroad.

On the other hand, I assume that one of the domestic factors, management, *can* be used for production abroad, since it is not required to be present where production takes place. Under what circumstances, then, will a service firm be able to compete successfully abroad? Obviously the answer depends on technology and the price of management in the two countries, not on the price of the service itself. If management is cheaper in Country A than in Country B, and if technologies are everywhere the same, then producers from A will be able to undercut the prices charged by producers in B, since they will have access to the same labour market in B, but will be able to use cheaper management. In fact, the same would be true for producers in B, were we to permit them to hire managers from A, but I will assume that the identity of the firm lies with its managers and exclude this possibility.

Continue to assume, for the time being, identical, constant-returns technologies. Clearly, then, trade in services will take place, if it is permitted, whenever the price of management differs between the countries. This could lead to specialization of various sorts, for example, all of the services in Country B being provided by Country

A's firms. But if it does not, then such trade will equate the prices of management in the two countries, just as trade in a good equates the price of the good. Further, once the price of the one good and the price of the one factor, management, are equated across countries, then the logic of the factor-price-equalization theorem will work to equate the remaining prices; those of the other factor, labour, and of the service. Thus free trade will tend to equate the price of services in the two countries, but not because of arbitrage in the markets for services themselves. The requirement that services be produced where they are consumed prevents such arbitrage. Instead the prices of services are equated indirectly, just as factor prices are equated in the H-O model.

Formally, let the countries produce a good, X , and a service, S , using factors of production labour, L , and management, M . Prices of the good, p , and of the service, q , will equal the minimum unit costs of whatever firms produce them, and these costs are functions of the wage of labour, w , and the salary of management, s :

$$p = c_X(w, s); q = c_S(w, s) \quad (11)$$

where each of the four prices should bear appropriate superscripts to indicate which country's good, service, and factors are being described. With free trade in the good, we must have $p^A = p^B$, and thus, if the good is produced in both countries,

$$p^A = c_X(w^A, s^A) = c_X(w^B, s^B) = p^B \quad (12)$$

With free trade in the service industry, Country A's producers will expand their operations in B's market whenever $c_S(w^B, s^A) < q^B$, since they can use their own managers and B's workers. If in equilibrium producers from both countries continue to serve B's market, this relationship must hold with equality, and thus

$$c_S(w^B, s^A) = c_S(w^B, s^B), \quad (13)$$

which, given the nature of the unit cost functions, will be true only if

$$s^A = s^B \quad (14)$$

Similar reasoning implies (14) if service producers from both countries share A's market, so that it is only if a single country's producers take over the provision of services in both countries that salaries will fail to be equalized.

Furthermore, once salaries are equalized, it follows from (12) that wages will be equalized as well, and then from (11) that prices of services will be equalized. Thus, with incomplete specialization, free trade in this model implies complete factor price and service price equalization, much as in the H-O model.

In order to examine further the nature of the free-trade equilibrium, it is helpful to use diagrams. In Figure 2, I show the two countries' transformation curves between X and S as they would appear if both countries were to use their labour and management only in domestic production. These are conventional transformation curves, and I have drawn them to reflect my assumption that Country A has an apparent comparative advantage in services. Thus if services could be traded directly, a world relative price of services, q^f , would prevail in both countries.⁸ Production and consumption would take place at points H and C respectively, and Country A would export S to Country B in exchange for X .

In the present model, such direct trade in services is not possible, but if there is factor price equalization as just described, the same price, q^f , will clear the market. To make this possible, some of the management in one of the countries will be withdrawn from production of domestic services, and put into use instead as an absent factor in production of services abroad. While the factor does not actually move internationally, the production possibilities in the two countries will be affected exactly as if it did.

Which country's management will do this? To determine this, one could either look at the autarky prices and the incentives they provide, or look at the changes in output that take place as production possibilities shift and see if they take us toward or away from equilibrium. Fortunately, both approaches yield the same result, as the reader can verify. But the result does depend on relative factor intensities, and so I now consider two cases. A third case, with unequal technologies, will follow.

FIGURE 2

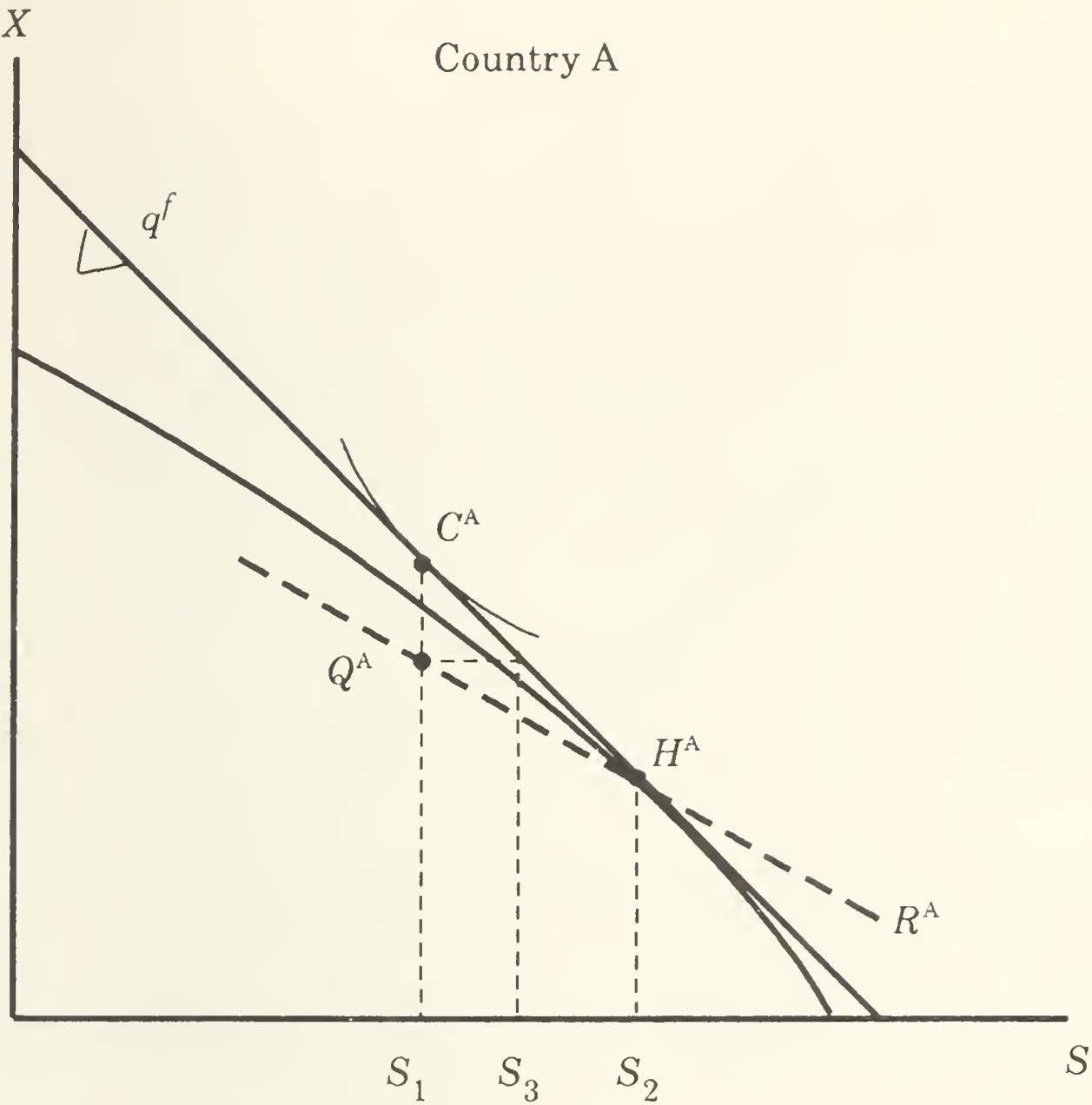
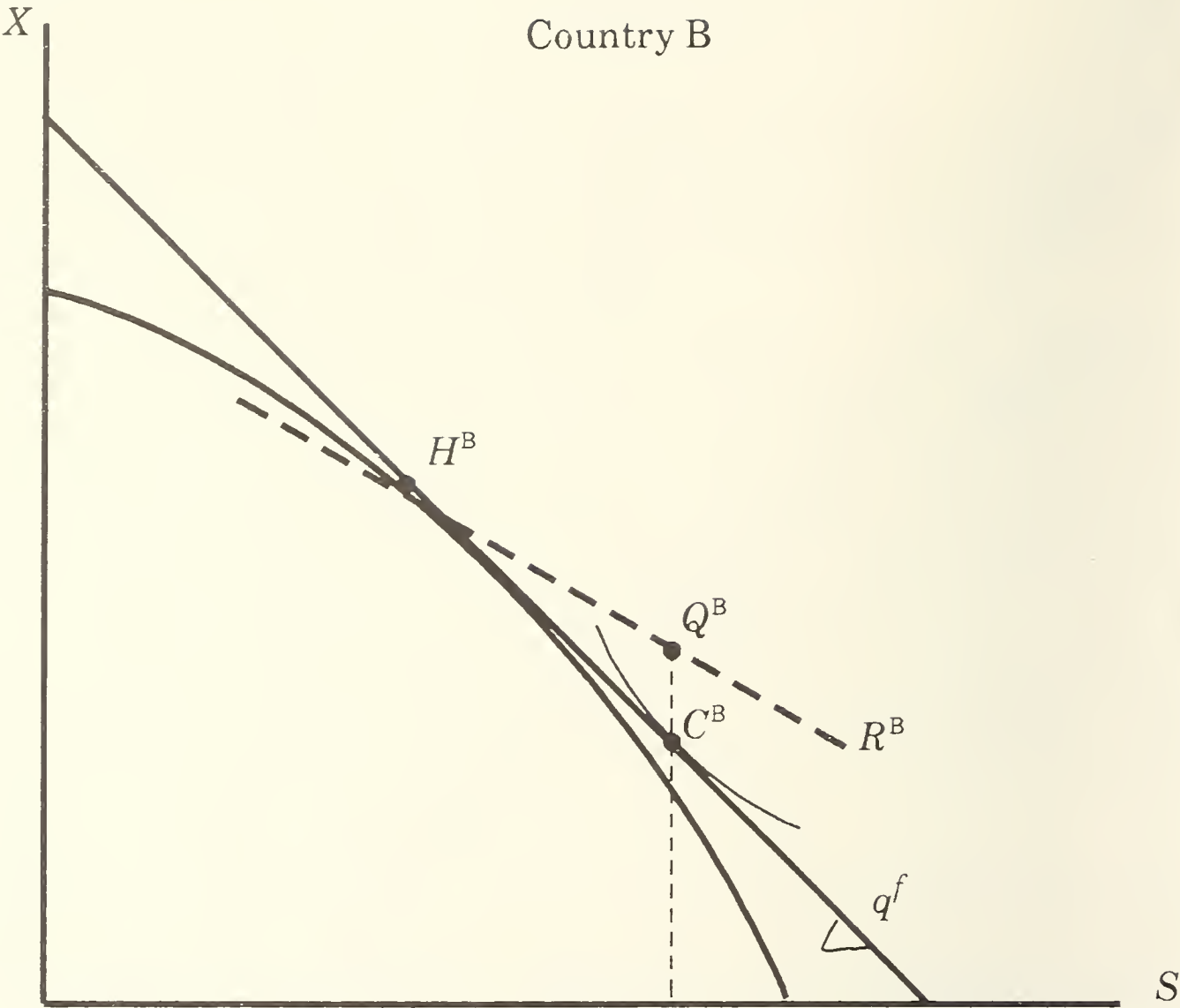


FIGURE 2



Case I: Services are management intensive

In this case, for Country A to have the assumed comparative advantage in services, it must also have a relative abundance of the factor, management. Thus in autarky, the salary of managers in A would be less than those in B, and there would be an incentive, as described above, for A's service producers to export services: they will set up operations in B and provide services using labour that they hire there, while continuing to use managers located within A. These managers, while they remain physically in A, are no longer contributing to production there, and A's production possibilities contract exactly as though the managers had moved abroad. As a result, A's transformation curve shifts inward in Rybczynski fashion. At the constant relative price, q^f , Country A's production point in Figure 2 will move to the left and upward, following the Rybczynski line R^A . Likewise, as these managers begin to contribute to production in Country B, that country's production possibilities will expand and its production point will follow the parallel Rybczynski line, R^B , down and to the right.

When will this process end? Since services must be produced where they are consumed, it will end when the outputs of services in both countries exactly equal what the countries' own consumers demand. Thus the equilibrium is found in A and B along the Rybczynski lines vertically below and above, respectively; the consumption points, C^A and C^B .

In this equilibrium, Country A imports good X, paying for it with what it earns from the provision of services in Country B's market. These services, which amount physically to the quantity $S_2 - S_1$ in Figure 2, are worth a good deal more than the imports of X that Country A gets in return. The difference, of course, is paid to labour in Country B.

It is a bit unclear how one should measure what is going on here. It seems clear that Country A is exporting services, but what is the quantity of services that is being exported? If we measure it as the total produced abroad, $S_2 - S_1$, then we either appear to have unbalanced trade or we must say in addition that service firms in A are *importing* labour from B. The latter is peculiar, since B's workers are neither moving to A, nor providing input to production there. Alternatively, one could measure the export of services by the amount

that the service firms repatriate, and which they use in turn to pay their managers. This, in units of services, is $S_3 - S_1$ in Figure 2 and is equal in value to the imports of X , but it gives the appearance of measuring an input rather than an output. Finally, one could give up trying to measure trade in services at all, on the grounds that services cannot, strictly speaking, be traded, and measure instead the export of factor services – management in this case – that is taking place implicitly within the service firms. This would give the same value as the second alternative.

In any case, whatever its amount, if there is trade in services here at all, it is clearly Country A that is doing the exporting. This is not surprising, since I assumed at the outset that A had a comparative advantage in services. But in fact comparative advantage has nothing to do with this result, as the next case I consider will make clear.

Case II: Services are labour intensive

If services are labour intensive, then Country A's assumed low relative price must be the result of an abundance of labour. This case is shown in Figure 3, where the transformation curves and free-trade price lines are the same as in Figure 2. What is different is the incentive for trade in services.

As a result of its abundance of labour, it is the wage, not the salary, that must be relatively lowest in Country A in autarky. Attempts therefore by A's service producers to penetrate B's market will be frustrated, since they will find themselves employing B's more expensive labour as well as their own more expensive managers, the worst of both worlds. Instead, it is B's producers of services that will have the incentive to trade, and they will begin to use their managers together with Country A's labour to produce services in A.

This causes A's production possibility curve this time to shift outward, and B's to shift inward, their production points as before moving along Rybczynski lines until markets are cleared. But this time, since services are now labour-intensive, these Rybczynski lines are steeper than the transformation curves rather than flatter, and the equilibria in Figure 3 are found above C in Country A and below C in Country B. This is as it should be, since A is now importing services, paying for them in part with its own labour, and in part with its exports of the good, X .

FIGURE 3

Country A

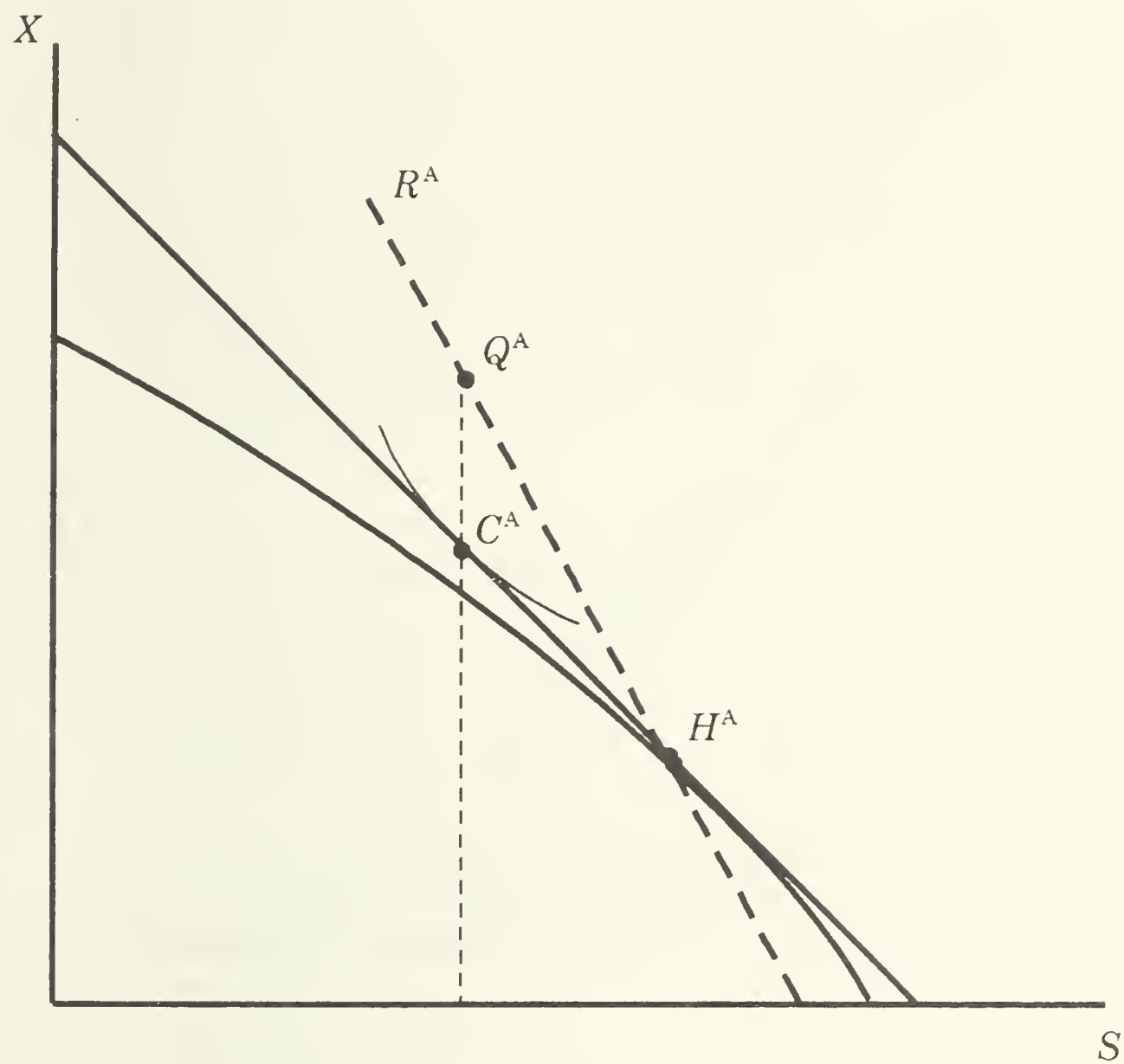
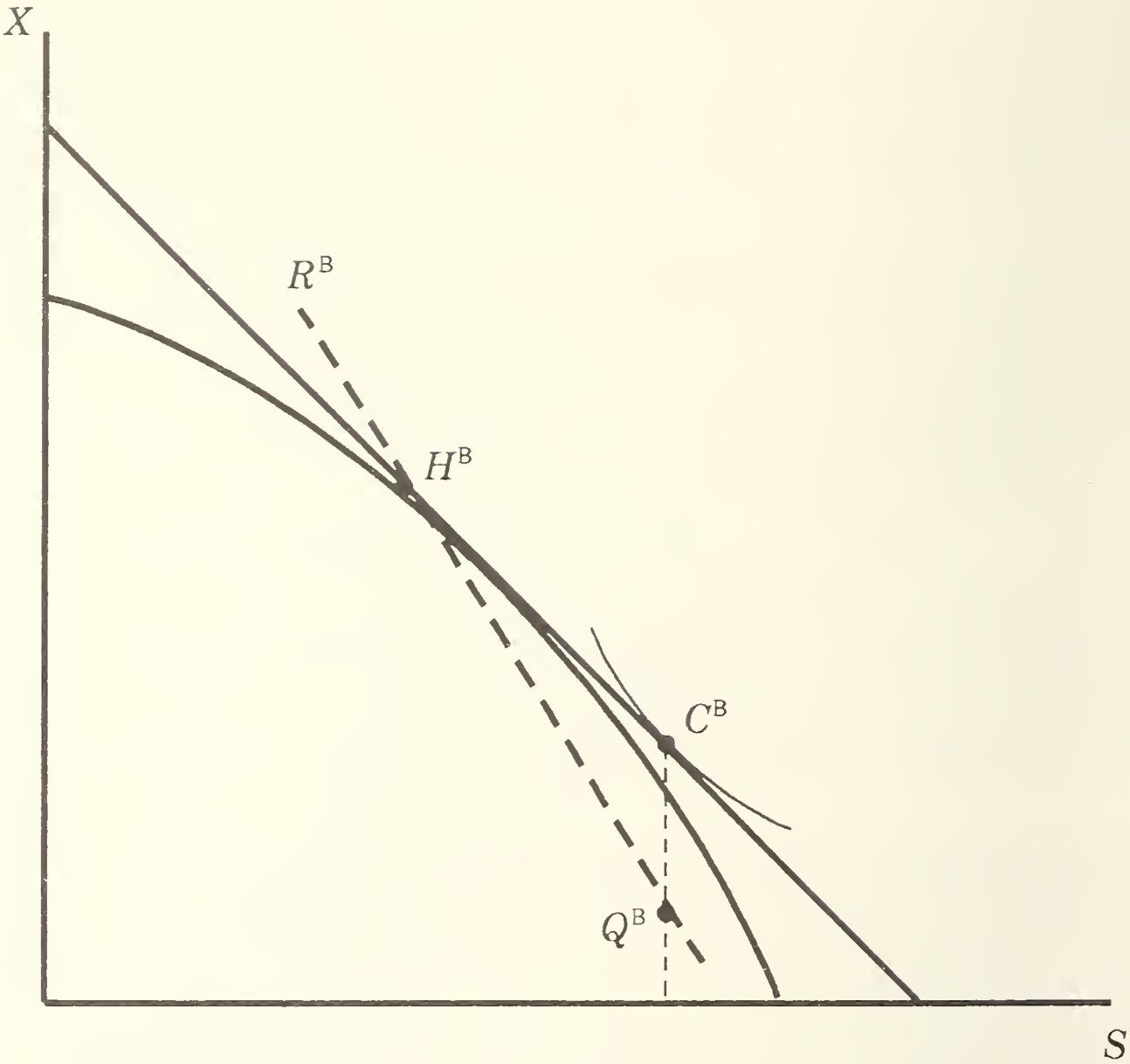


FIGURE 3

Country B



Thus, we have a case in which trade in services appears to run counter to comparative advantage. Labour-scarce Country B exports labour-intensive services in spite of the fact that these services cost more in B than in Country A in autarky. The reason for this result is that direct competition in the service industry is ruled out by the need to produce in the presence of consumers, together with the inability to move labour internationally. Instead, the only thing that matters for this kind of trade is the price of the only factor whose services can, in a sense, be traded: the factor I have called management whose productive services can operate from a distance. Since management is the abundant factor in B, this pattern of trade makes sense.

Whether this pattern of trade should in fact be thought of as violating the principle of comparative advantage is another question, however. It turns out that by carefully reinterpreting what we mean by the principle, we can assure that it remains valid even in this model.

One possibility, in line with the third method of measuring trade mentioned above, would be to say that services are not being traded at all, and that what is being traded is the productive contribution of the factor, management. Since in both cases I and II considered above, services are exported by the country in which management has the lower relative autarky salary, trade then follows comparative advantage.

Another possibility, more in line with modern interpretations of the generalized Heckscher-Ohlin model, is to focus not on trade itself but on the factor content of that trade. In that case, since the activity of producing the service abroad incorporates a contribution from only one domestic factor, management, the factor content of that trade is exclusively management. It follows again that each country tends to export, in factor content terms, its abundant factors.

Unfortunately, neither of these interpretations is particularly useful when it comes to explaining what is commonly meant by trade in services. For that, the model of this section has to suggest that the principle of comparative advantage is of little use, largely because in this model trade in services is not trade in the conventional sense.

Case III: Differences in technology

A final case should be briefly considered, since it casts doubt on even the successful interpretations of comparative advantage mentioned

above. Suppose that factor endowments are the same in the two countries and that autarky prices differ instead because Country A has a different technology for producing services than does Country B. There are many ways that technologies could differ, and the nature of the difference can be important, as is well known even in the conventional H-O model.⁹ I will assume simply that A has a Hicks-neutral technological advantage in the industry. It is also important, in this model, whether the superior technology continues to be available to a firm if it produces abroad. There are some interesting possibilities here, but I will assume that a country's managers know their technology, so that its use abroad is possible.¹⁰

Consider first how the autarky equilibria in the two countries will compare. If the two countries were to face the same price, A would clearly produce more services and less goods than B. If demands are identical, it follows that the autarky price of services in A must be lower than in B, and thus that the relative amount of services that is produced and consumed in A will be greater than in B. What this means for factor prices depends both on the degree of substitution between goods and services in demand and on the relative factor intensities of the two industries.¹¹ It is enough to consider one possibility. It may be that the salary of management in A, measured in units of X , is higher than in B, but by less than the full extent of A's technological advantage.

If that is the case, then when trade is permitted, A will clearly export services to B. For A's producers have a superior technology, and their managers, though paid more than managers in B, are not paid enough to offset their firms' competitive edge.

Now this is as far as we need to go to see the implications of this example for comparative advantage. On the one hand, comparative advantage in the usual sense now seems to be working quite well: A is exporting services, which it produced more cheaply than B in autarky. On the other hand, consider the alternative interpretations of comparative advantage that were used above to reconcile case II with comparative advantage. In this case the autarky price of management is higher in A than in B, but with trade Country A nonetheless appears to export the services of management. Thus the suggestion above that this model really involves trade in management, not services, and that this trade is in accord with

comparative advantage, fails to work once differences in technology are introduced.

Summary of the cases

Note, then, what these three cases together suggest about the validity of various versions of the principle of comparative advantage:

Version 1 Countries tend to export those goods and services for which their relative autarky prices are lowest. This version is false in case II above, where services make intensive use of the factor that must be employed locally where the service is provided. The reason is that a low autarky price in this case primarily reflects the cheapness of this factor at home, and this is of no use in exporting the service.

Version 2 Countries cannot trade service outputs, since these must be produced where they are consumed, but can only trade those inputs to the production of services whose contribution can be made internationally. Thus countries tend to export those goods and those international service inputs for which their relative autarky prices are lowest. This version is true in both case I and case II above, where countries share identical technologies. But if technologies differ, as in case II, then this version is no longer necessarily true. Service inputs such as management may be highly paid as a result of a technological advantage, and may nonetheless, because of that advantage, be able to compete in producing services abroad.

Version 3 In terms of the factor content of trade, countries tend to export those factors (embodied in both goods and services) for which their relative autarky prices are lowest. This version, like version 2, is true in both case I and case II, but may be false in case III.

Thus, no version of the principle of comparative advantage that I have been able to find is valid in all three cases. It is interesting that version 3 is a form of what is usually regarded as the Heckscher-Ohlin theorem, rather than the principle of comparative advantage. Since we have always known that the H-O theorem is valid only with identical technologies, one can say that it is made no less valid by introducing services. On the other hand, the conventional principle of comparative advantage, which version 1 probably comes closest to expressing, has been presumed to be much more generally true than

the H-O theorem.¹² Thus it seems that allowing for services in the manner done here has much more serious implications for comparative advantage than it does for the factor proportions theory as embodied in the H-O theorem.¹³

CONCLUSION

I have looked in this paper at three different characteristics of trade in services, to see in each case what they suggest for the validity of the principle of comparative advantage. These characteristics were, first, that traded services often are demanded as a byproduct of trade in goods; second, that trade in services often goes hand in hand with international movement of factors; and third, that services may be provided internationally by transnational firms, some of whose factors of production make their contributions from a distance. The first two of these characteristics, I argued, do not in any way undermine the usefulness of comparative advantage in explaining trade, but the effect of the third is more troublesome. While it may be possible to reconcile trade with comparative advantage in this case, to do so requires a reinterpretation of trade in a way that interferes considerably with the usefulness of comparative advantage as a guide to empirical reality. Furthermore, when comparative advantage results from differences in technology rather than differences in factor endowments, then the reinterpretation actually makes matters worse. I am left with the uneasy feeling that the principle of comparative advantage may not be as robust as many, including myself, have thought.

The question remains as to whether the model of the last section, which led to this conclusion, has any validity itself. That many corporations transcend national boundaries is clear, and that activities in the home office might contribute to the productivity of subsidiaries seems to me to be eminently reasonable. The particular form assumed for this contribution in the model is of course far too simple, but as an illustration of how this phenomenon might matter for trade, I feel it is appropriate. In any case, I look forward to the impressions of others as to the usefulness of the approach taken here.

I do find the troublesome case II especially interesting because of the way it seems in one sense to correspond to reality. It has been observed that services tend to be relatively expensive in the United States relative to the world at large.¹⁴ Nonetheless, as is evident from

the US concern with trade liberalization in services, many regard the United States as at least a potentially important exporter in these industries. Now admittedly, this apparent contradiction of comparative advantage may result entirely from an aggregation problem: the particular services that we are likely to export are quite different from the bulk of very labour-intensive services that even the United States would be more than content to see remain largely nontraded or restricted. But it is interesting that Country B in the case II example was also a labour-scarce Country and that it nonetheless could profit from exporting services that were, in comparison with goods, labour-intensive.

A final remark is in order regarding the welfare implications of what I have said about trade in services. Nothing that I have done here should be regarded as casting doubt on the potential for countries to gain from free trade, in services as well as goods. Even in the case II example, where trade might be said to run counter to comparative advantage, there is still a very clear gain from trade for both the countries involved.

NOTES

- 1 One might be uncomfortable with the idea that managers never set foot in the country where production takes place. Presumably, the presence of managers when a subsidiary is first established may be necessary, even if the subsidiary can function without them present later on.
- 2 These are services that Stern (1985) calls complementary to goods.
- 3 Another possibility, in some cases, would be to use the autarky prices of similar services that are used within the domestic market even in autarky. This may be misleading, however, since the requirements of international trade are often different from those of domestic trade.
- 4 Similar problems arise if transportation is provided by the exporting country or even by a third country.
- 5 A more realistic but more cumbersome specification would be to define all trade services produced as exported and all trade services used as imported, since trade statistics typically measure a country's trade from its own border. Obviously the results here, which relate to net trade, would not be affected by this specification.

- 6 Note that (10) is consistent with $T^s = 0$. That is, even though trade in goods is permitted in semi-autarky, it may be that none will occur, if the costs of domestically produced trade services turn out to be prohibitive.
- 7 On the other hand, Bob Staiger has pointed out to me that local content legislation has precisely this effect. It is interesting to speculate on whether, given the findings below, such legislation can undermine comparative advantage even in goods.
- 8 I am now taking the price of the good as numeraire, $p^A = p^B = 1$.
- 9 See Findlay and Grubert (1959), for example.
- 10 With this in mind one might prefer to think of the technology as embodied in the managers, so that it would be factor-augmenting instead of Hicks neutral. I do not believe that alternative specifications of the technological advantage would make much difference for the point that I wish to make here.
- 11 If preferences were Cobb-Douglas, for example, A and B, with their identical factor endowments, would produce the same amount of the good, X , in autarky and factor prices would be the same in the two countries in units of X . If the elasticity of substitution in demand is other than one, on the other hand, demand for X will be either larger or smaller in A than in B, and factor prices will differ also, in accordance with the relative factor intensity of X .
- 12 Compare the treatments in Deardorff (1980) and Deardorff (1982).
- 13 In his comment below, Ron Jones suggests that something like version 2 of comparative advantage can be salvaged even in the case of nonidentical technologies if one either allows managers in the two countries to be viewed as different factors, or regards managers in one country as embodying more units of management services than managers in the other. I am attracted by this interpretation, but I am also uneasy with it for a number of reasons. First, since the technological advantage need not, in the technical sense, be factor-augmenting (as in general the Hicks-neutral advantage assumed above is not), the difference between the management factors in the two countries may not be well defined. Second, in the case III example, the technological advantage exists only in the service industry, and the management factor is the same in the two countries when employed in the goods industry. Thus it is not the case that one

country's managers unambiguously embody more units of management services than the others, but only if employed in a particular industry. And third, I am generally leery of attempts to rescue comparative advantage by defining goods traded by different countries as different goods, and my reservations extend to doing the same thing with factors. This practice, it seems to me, comes close to making the principle of comparative advantage tautological.

14 See, for example, Stern's (1985) contribution to this conference.

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Comments

Ronald W. Jones

University of Rochester

No modern economist has thought more about the principle of comparative advantage than has Alan Deardorff (1979, 1980, 1982). In his present paper, Deardorff has sketched some of the characteristics of trade in services and raised questions as to the applicability and relevance of his earlier propositions to this particular type of international exchange. I suspect most practitioners in our discipline take some care in concealing any personal doubts they may have about their earlier work. By contrast, Deardorff seems genuinely perplexed at the end of his analysis about whether some examples of trade in services could be found that seem to violate the principle of comparative advantage. Thus, he says 'I am left with the uneasy feeling that the principle of comparative advantage may not be as robust as many, including myself, have thought'. On this note I beg to disagree. There is, I shall argue, a way of looking at the problem that dispels any hint of paradox in the cases which Deardorff has found puzzling.

Of the three characteristics of the trade in services that Deardorff isolates, I will concentrate on the third, for it is in this category that difficulties seem to arise. Services are seen to differ from goods in two respects:

- 1 They must be produced in the locale in which they are consumed.
- 2 Not all inputs required to produce services need be located in the same place.

This latter assumption has recently been utilized by Helpman (1984) and Helpman and Krugman (1984) in discussing the operating procedures of multinationals, whereby headquarter facilities or the like can reside in the head country and yet contribute to production in (I hesitate to use the phrase 'provide services in') another country.

These characteristics of services can, in my view, easily be accommodated by the kinds of models dealing with international capital mobility developed in the past two decades. Characteristic (1) suggests that services fall into the category of nontraded goods, albeit goods that require, as an input, a productive factor from abroad. This is not to contradict characteristic (2). A model of real international capital mobility, such as developed in Kemp (1966) and Jones (1967) for a Heckscher-Ohlin world, suggests a physical relocation of capital from one country to another, with earnings of such capital repatriated to the country of ownership. But the formal structure of the model in no way requires that the capital actually move; the interpretation suggested by characteristic (3) leads to the same logical relationship (as long as the use of capital in one locale precludes the simultaneous use of the same units of capital in another).

Suppose now we interpret Deardorff's final three cases in these terms. In all three cases countries A and B trade with each other. Two goods can be produced in each, *X* (a normal *traded* good) and something called services (the *nontraded* good in the older nomenclature). Two productive factors are required – labour and management. The latter factor is akin to the factor 'capital' in the earlier literature, with the current interpretation that its use in production abroad (especially in nontradables) does not require its physical relocation abroad (managers use transatlantic phones).

In a Heckscher-Ohlin setting, factor intensities matter, and in case I Deardorff assumes that services (the nontraded good) are management (capital) intensive. Country A is assumed to have a comparative advantage in services stemming from a relative abundance of management, with countries A and B sharing identical technologies. Translated, this implies that in the autarky state the relative price of nontradables (compared with tradables) is lower at home and, with it, the return to capital (the salary of managers). With trade opened up the foreign country exports the tradable good, *X*, while some of Country A's capital is employed abroad: 'managers, while they remain physically in A, are no longer contributing to

production there'. This pattern of trade flows of tradable good X from Country B balanced by payments to A for use of capital service (management) achieves a level sufficient to ensure that in B production of nontradables ('services') expands (via management inflow) to match the enlarged demand (as nontradables' price is lowered compared with its autarky state). This flow corresponds precisely with the principle of comparative advantage.

In case II the factor intensity ordering is assumed to be reversed with, nonetheless, Country A assumed once again to exhibit a relatively low price for services (nontradables) in autarky. Such a situation implies a relatively high return to managers (capital) in A. Let r_K^A and r_K^B denote the returns to managers (capital) in the two countries prior to trade, and p_T^A and p_T^B the pretrade prices of tradable X . Then in autarky,

$$\frac{r_K^A}{p_T^A} > \frac{r_K^B}{p_T^B}$$

This comparison of autarky prices for all those items that can be traced predicts an outflow of capital from Country B to Country A (in the form of managers in B supplying their talents to productive activity in A), balanced by an export of tradable good X from A to B. While it is also the case that the autarky price ratio of nontradable services in A, p_N^A/p_T^A , is lower than in B, p_N^B/p_T^B , this is of no consequence for the trade pattern. The principle of comparative advantage predicts trade flows from relative autarky prices *for those items that enter trade*. The return to managers (capital) qualifies, while the comparison of service prices (nontradables) does not.

Case III poses a different kind of puzzle. The assumption that trade is supported by differences in factor endowments, made in cases I and II, is replaced by the Ricardian assumption that differences in technology (with factor endowments identical) account for differences in pretrade autarky prices. One might expect such a shift from Heckscher-Ohlin to Ricardo not to undermine the principle of comparative advantage, since the latter was first promulgated for a Ricardian world. But Deardorff is puzzled by the consequences for the trade pattern of allowing Country A to share an identical technology for producing tradables but having a Hicksian neutral technological

superiority in producing nontradable services. Furthermore, such a superiority is embodied in both labour and management skills. The former cannot seek employment abroad but the latter can (although without moving physically).

In autarky he assumes Country A's managers are paid more than Country B's (relative to the price of X), but that this gap is less than the productivity edge favouring A's managers. Thus with trade, A's managers work for Country B. The fact that this trade flow exists despite the higher relative autarky return to A's managers is interpreted by Deardorff as a contradiction to the principle of comparative advantage.

To see the error in this interpretation, imagine instead that goods trade is involved, and Country A exports Cadillacs and Country B makes Fiats more cheaply. Should A's exports be considered a violation of comparative advantage? Surely not – Cadillacs and Fiats are different goods. But so also are managers in A and B, at least in their productivity in producing nontradable services. Adjusted for quality units, managers have a relatively *low* autarky return in A and this reconciles the trade pattern with comparative advantage.

In summarizing his three cases, Deardorff offers three versions of the principle of comparative advantage. Version 2 states:

Countries cannot trade service outputs, since these must be produced where they are consumed, but can only trade those inputs to the production of services whose contribution can be made internationally. Thus countries tend to export those goods and those international service inputs for which their relative autarky prices are lowest.

As Deardorff acknowledges, such a version does deal successfully with both cases I and II because it draws a distinction between what is traded (the management input) and what is not (his 'services', which are nontraded). To cover case III as well, he needs only to redefine inputs into quality-adjusted units, a procedure that would probably be more obvious had the item traded been an output of higher quality than competitive but similar outputs abroad. Such an output could readily be exported despite a higher price tag without violating the principle of comparative advantage.

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Comments

James R. Melvin

University of Western Ontario

Alan Deardorff has provided us with a novel and thought-provoking discussion of the role of comparative advantage in international trade in services. The analysis is most welcome for nothing of a comprehensive nature exists in the area. As Deardorff has noted, the few authors who have written on the topic tend either to argue that services are not different from other goods with respect to international trade problems, or to treat special cases.

Deardorff argues that a principal difficulty in analysing trade in services is the lack of consensus on what distinguishes services from the commodities that we usually consider in international trade theory. He concludes, rather too pessimistically I feel, that because of the wide variety of goods that can be classified as services the issue is 'one that can never be resolved once and for all'. Deardorff thus opts for a piecemeal approach and confines his attention to three distinct kinds of services – or more correctly characteristics of services – and analyses each of these in turn. One difficulty with this approach is that even if one accepts all Deardorff's arguments one is left, in the end, with a partial taxonomy and with uncertainty as to how much of the problem has actually been addressed. While such an approach might eventually lead to a general theory of trade in services, such an end is not in sight at the conclusion of Deardorff's paper.

It is my view that Deardorff has been too quick to abandon the search for a comprehensive classification of services that would facilitate definitive trade theory analysis. While I certainly do not claim to be able to provide a definitive classification, I think some progress can be made towards a general definition of services that

would facilitate an analysis of their consequences for international trade or, for that matter, of economic analysis in general. I therefore begin with a general discussion of services, the aim of which is to provide a classification that will allow for a clear distinction between goods and services. I will then comment on how this classification can be of assistance in considering some of the problems treated by Deardorff in his paper.

First, it is important to recognize that goods and services are not distinct or disjoint sets of things, at least not as goods and services are traditionally perceived. Rather, services should be considered as a special class of commodities that have characteristics distinguishing them from things we do not think of as services. In economic theory we think of goods or commodities as those things providing utility to consumers, and apples, haircuts, and refrigerators would certainly all be included in such a classification. The issue is whether one can identify the characteristics of commodities such as haircuts and refrigerators that distinguish them from commodities such as apples.

Another important distinction should be made between services associated with commodities and services associated with factors. Just as there is a subset of the class of commodities that we think of as services, there is a subset of inputs to the production process that we should regard as services. Some of the confusion arising with regard to services seems a result of the failure to distinguish between services that are commodities and services that are factors.

We begin first with the consideration of those commodities that we think of as services. Of course in some sense all commodities provide services, for an apple satisfies one's hunger just as a haircut improves one's appearance. The distinction we wish to make is not concerned with how these commodities differ with respect to their role in utility maximization, but rather with the relationship between the production of these commodities and their use by consumers in the utility maximization process. With an apple there is no particular link between production and consumption. An apple grown in Ontario in September can be consumed in Michigan next February. Nor is there any communication required between the apple producer and the final consumer. Haircuts, however, are quite different. Not only must the consumer and the producer be at the same place at the same time, but the production and consumption activities are exactly the

same process. You cannot produce haircuts in September in Ontario to be consumed next March in Michigan.

Yet a further distinction must be made for commodities such as refrigerators or automobiles. These share the attributes of apples in that there is no necessary link between production and consumption, but they differ in that the commodity itself is not consumed but provides services to the consumer over a period of time. In this case, by services we are referring to commodities such as cooling or transportation. Each is provided over a period of time by a consumer durable. The provision of the service by the commodity shares a characteristic of haircuts in that the consumer must be physically associated with the commodity in order to receive the service it provides. To obtain transportation from an automobile one must be at the same location.

It seems clear from the above that the most important characteristic of services has to do with the time dimension of economic activity. For commodities such as haircuts, production and consumption must take place instantaneously. For commodities such as refrigerators there is no necessary relationship between the production of the commodity and the consumption of the service, but the consumption of service provided by the commodity occurs simultaneously. Intermediate between these two are commodities such as apples with no necessary relation between production and consumption and a single provision of the service, that is, the consumption of the apple.

As well as the services associated with time there are also services that exist so that one can overcome the dimension of distance. Only for service commodities such as haircuts will we typically find production and consumption activities taking place at the same spatial location. Thus transportation must be provided to move the commodity from the producer to the consumer. Wholesale and retail activities provide another example of services that facilitate the matching between consumers and producers. These provide service to consumers by providing locations where commodities can be exchanged. All such activities, while appropriately classified as services, do not substantively differ from many other stages of the production process and can therefore be considered as intermediate inputs. From a consumer's point of view the transportation costs for apples are no more or no less important than the cost of pruning apple

trees - both simply add to the cost of the final product. There does not seem to be any particular reason to distinguish this kind of intermediate input from any other.

Standard economic analysis is almost entirely free from consideration of the time and space dimensions that we have discussed above. Commodities are almost always assumed to be like apples, and the fact that consumption and production will generally occur at different points in space is seldom taken into account. We use the word 'services' to describe commodities that have characteristics distinguishing them from the usual commodities of economic analysis - they are associated with the time and space dimensions of economic activity. Perhaps one of the reasons that services seem to present problems in economic theory is that most economists are not accustomed to including these dimensions in their analysis.

Factors of production have the same space and time dimensions as commodities, and the consequences for economic analysis are quite similar. We will briefly consider the four traditional inputs to the production process: land, labour, capital, and intermediate goods. Note that for the first three it is the services these factors provide that are inputs to the production process and not the factors themselves. Of course we could regard intermediate goods as also providing services, in the same way that an apple provides services to consumers. And as with an apple, the intermediate product is completely consumed, or used up, in the production process. Labour, or at least physical labour, is analogous to haircuts in the sense that the owner of this factor of production must be present and must provide services as production takes place. The owners of capital, on the other hand, need not be present, and indeed are largely indifferent concerning when the services of their factor are actually employed (assuming always that rentals are not affected). Land provides services similar to both capital and labour. Agricultural land must certainly be present at the production process, although of course owners need not be. Natural resources such as mines and oil wells provide a service that can be used anywhere at any time, at least as far as the owners of these factors are concerned.

For factors there are services associated with space just as for commodities, because inputs must be transported to the location of production and markets for these inputs must be established. Again these services can be considered most easily as intermediate products

and would seem to present no particular difficulties in economic analysis.

It is now time to turn our attention to Deardorff's paper to see if the above classification of services can be helpful in analysing some of the questions that he addresses. The first class considered is trade services, which includes transportation, insurance, and so on. In our terminology this is a service associated with the dimension of distance and can, we have argued, be considered as a kind of intermediate input. It is well known that intermediate inputs cause no particular difficulties in international trade theory so that no particular problems with the notion of comparative advantage are to be expected. This is, indeed, the conclusion reached by Deardorff.

Several other issues related to transportation services are discussed and deserve some comment. Deardorff worries about the fact that in autarky trade services do not exist and suggests that this might cause problems in defining autarky prices. This worry seems to assume implicitly that distance exists only between countries and that within a country production and consumption all take place at a single point. When space within an economy is recognized, the same kind of domestic trade services as those required for international transactions would be observed. And while distances may be larger and costs higher for international product movements, this would simply require more of this particular intermediate good for the production of the final consumer product.

Deardorff also discusses the question of who provides this transportation service. Of course the question of who imports or exports this intermediate input is of interest, but it does not seem inherently different from the question of who imports or exports any of the other intermediate inputs to a production process. Standard trade theory is able to handle these questions without difficulty.

The second type of service considered by Deardorff involves the production of a non-traded service requiring the use of a foreign factor of production. In terms of our classification we could have haircuts produced by domestic barbers in the foreign country. As Deardorff quite rightly points out, this is not a question of trade in commodities but rather a question of factor flows, and seen in this light the standard doctrine of comparative advantage handles the question without difficulty.

The third case considered by Deardorff concerns the production of a nontraded commodity service requiring the use of a tradable factor service. In this case we have haircuts in the foreign country requiring the management skills of domestic entrepreneurs. In this example there are two kinds of services involved, one a commodity service that is not traded and the other a factor service which is, and this seems to cause some confusion in the analysis. It seems clear, however, that again we have a case where a factor service is provided to a foreign country, payments for which will be made in terms of the nonservice good. Viewed in these terms we can again conclude that the traditional theory of comparative advantage is adequate for the analysis.

The final example considered concerns technological differences between countries, and this, rather than services, is the crucial determinant of the factor flows. The service component there is not essentially different from the case considered earlier. In any case Ron Jones in his comments has covered this aspect quite adequately.

I conclude that the type of service trade considered by Deardorff when viewed in the light of the classification of services provided above does not provide any substantive difficulties for the doctrine of comparative advantage. This does not mean, of course, that all issues concerning trade and services have been resolved. Much more work is required in this area, and Deardorff's thoughtful paper provides a good foundation for such future analysis.

Normative issues raised by international trade in technology services

Gene M. Grossman and Carl Shapiro

Princeton University

International competition between the industrialized countries is shifting increasingly to the arenas of the 'high technology' or 'sunrise' industries. Many feel that successful performance in these areas may be critical to the long-run vitality of these countries' economies. As a result, attention has been focused recently in the United States and elsewhere on the pace and direction of technological innovation and on the evolution of international market shares in the progressive, knowledge-intensive sectors. Policy recommendations in this area are abundant, sometimes forming part of a broader scheme of 'industrial policies'. Among the suggestions that have been voiced most frequently in this regard are those that would directly affect the conduct of international trade in technology services.

In the academic literature, the normative issues raised by trade in technology have until now received relatively little attention from international economists. The voluminous writings on the gains from international trade and on the welfare effects of various trade policies have been concerned almost exclusively with the exchange of goods and, to a lesser extent, factor services. And, although it is tempting to

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assume that the principles that emerge from this literature extend immediately to other forms of international transactions, we will argue as a main theme of this paper that, at least where purchases and sales of technology are concerned, this is unlikely to be the case. In particular, we will point to some of the special features of technology as a commodity, and of the environments in which technology is most often produced and traded, that should give rise to concern, if not outright scepticism, over the ability of the free market to yield efficient outcomes. If we are successful in our arguments, it will become apparent below that many of the interesting questions concerning technology trade are as yet unanswered.

What are the special characteristics of technology that distinguish it from ordinary commodities for the purposes of the formulation of trade policy? The key attribute to note is that as a form of information, technology (at least when it is disembodied) has all of the properties of a *public good*. That is, once a new technology has emerged as the outgrowth of a research and development (R&D) project, its use in some particular application by one firm does not preclude its simultaneous use elsewhere by the same or a different firm.

This public-good aspect of R&D output has a number of implications, all of which suggest that the study of technological advance and competition in progressive industries cannot be properly conducted using the conventional models of perfect competition that are typically applied to problems in international trade. First, the public-good character of innovations implies that it will be difficult, if not impossible, for a private innovator to appropriate all of the (potential) social benefits of any new discovery. Consequently, private incentives to undertake R&D are likely to deviate from social ones. This problem immediately gives a 'second best' flavor to the theory of technological competition.

Second, the fact that R&D expenses generally vary relatively little with the quantity of output or the number of applications implies that the development of technology, if viewed as an intermediate input, imparts a substantial economy of scale in the production of final goods. This means that imperfect competition is likely to be the appropriate market structure in which to analyse issues related to R&D and technology trade. The existence of some market power,

either at the research level or the production level, is a prerequisite for R&D to be remunerative.

Often, innovators are vertically integrated into production and enjoy their market power at that level, or else they restrict the use of their technologies to a small number of producers in order to create monopoly profits downstream. Either way, the product market structure ultimately is one of imperfect competition, and it is in this context that technology trade typically takes place. This raises important public policy concerns, which we discuss below.

Alternatively, it is possible for the downstream market to be competitive, if the upstream (research) market yields sufficient rents to cover R&D costs. But the high ratio of fixed to marginal costs in R&D implies that, should two firms gain access to similar technologies and seek to license these to third parties, the competition between them is likely to be particularly intense. This means, among other things, that trade benefits may accrue disproportionately to technology-importing countries in such instances, and that, perhaps counterintuitively, opportunities for technology trade could dampen incentives to undertake R&D.

Recognition of these properties of information and the markets in which it is produced and traded suggests two important issues that a complete analysis of technology trade should seek to address. One is the question of whether technology is likely to be overproduced or underproduced in the marketplace in various situations and institutional settings, what effect the presence or absence of trade in technology has on this determination in each case, and how public policy can be used to better the outcome from a national welfare perspective. The other question concerns the relationship between technology trade (and trade policy) and market performance in imperfectly competitive environments. Two considerations are relevant here. First, the inevitable existence of market power, though necessary as a return to innovation, implies that for any given state of technological advance the products of R&D-intensive sectors are likely to be underconsumed. The second point is one that has become a recurrent theme in recent studies of trade under conditions of imperfect competition. That is, the possible existence of supernormal profits in industries where technology is produced and traded may mean that, from a strictly nationalistic perspective, governments will

want to pursue those policies that ensure that the largest possible share of these oligopoly profits accrue to domestic firms. Laissez-faire is unlikely to achieve this objective, since: (i) policy can be used to alter the nature of strategic interaction between firms in oligopolistic industries (see, for example, Grossman and Richardson 1985); and (ii) firms, in making their corporate decisions regarding which R&D projects to undertake, which already developed technologies to sell or license to foreign and domestic firms, and what technologies to buy from others, will not take into account the external effects of these decisions on the profits of other domestic firms.

In the first section, we will discuss the various forms that trade in technology services can take, and present the available data on such trade, also pointing out why measurement of the phenomena may well be impossible. In section 2, we will review the existing literature on trade in technology services, or, as many of the papers refer to it, 'technology transfer'. The distinction between these phrases may in fact be more than semantic, since the models of technology transfer generally apply, implicitly or explicitly, to situations where technology is passed from government to government (sometimes in exchange for a royalty payment, somehow determined), and then is made available by the importing country to all of its perfectly competitive producers, generally free of charge. This may be an accurate description of some North/South transactions, especially in the agricultural sector, but it probably holds little relevance for consideration of the exchange of industrial technologies between developed countries. The technology transfer paradigm is inappropriate for this purpose inasmuch as it fails to consider both the conditions under which new technologies are produced and the incentives for the sale of those technologies. In reality, most R&D gives rise to property rights, that is, copyrights or patents, that do not reside with the government.

In section 3, we briefly discuss some issues that arise in the context of *intrafirm* trade in technology services. Then, in section 4, we take up the case of *interfirm* trade, first treating the state of technological advance and the distribution of patent rights as given, and then inquiring into the effects of technology trade on the social appropriateness of private incentives to conduct R&D. This section,

especially, is exploratory in nature, more in the way of an agenda for research than a reporting of well-established results.

1 TRADE IN TECHNOLOGY SERVICES: DEFINITION AND MEASUREMENT

A firm that is in possession of some unique technology faces a choice among several alternative ways of exploiting its proprietary information in international markets. The most obvious and most common practice is for the firm to produce and export the goods that embody the technology. Such transactions can be thought of as implicit or embodied trade in technology services, much as trade that is motivated by factor endowment differences is sometimes viewed as implicit trade in factor services (as when the factor content of a country's trade bundle is computed). However, it is probably best to reserve the phrase 'trade in technology services' for situations where the firm opts to export the technology itself, rather than the goods that embody it. This exportation can be accomplished in one of two very different ways. First, the firm may choose to establish an overseas subsidiary for the purposes of applying its technology to the production of goods there. Such technology trade is *intrafirm*, and is in a sense inseparable from the direct foreign investment that is its conduit. Alternatively, the firm may choose to trade its technology at arm's length, or *interfirm*, by licensing its patents to one or more foreign parties. The choice between these options is influenced by a host of economic factors, including the presence or absence of import barriers in the foreign market, the size of transportation costs, the differential in factor prices across the relevant markets, the importance of economies of scale and scope in the production and management process, the extent to which specific knowledge about local cultural and market conditions is essential for selling the goods in question, and the precision with which the technology can be specified and communicated in a contract, if it is to be sold to an unaffiliated organization. These issues have been discussed at length elsewhere (see, for example, Caves 1971, 1982 and McCulloch 1985), so we choose not to deal with them further here.

If the alternative of intrafirm trade using direct foreign investment is selected, the technology is transferred to the overseas affiliate when the firm communicates information on product design and production

processes to its engineers abroad, when it trains foreign managers and technicians, or when it transfers its home personnel with their knowledge of the specific technology to the subsidiary. The very nature of this sort of technology trade, insofar as it cannot be associated with any one particular transaction, creates fundamental conceptual problems for any effort to assess its magnitude. For a process innovation, one might attempt to measure the cost savings at prevailing factor prices that are realized by the firm in using the transferred technology rather than the next best locally available alternative. However, this measure is sensitive to the amount of output that is being produced, and there would seem to be no way to hold constant the quality or mix of inputs in comparing the subsidiary to other local plants. The task is even more formidable for a product innovation, where no standard of comparison is locally available. An alternative might be to take a cost-based approach, allocating in some way the firm's R&D expenditures among its several production facilities. However, any such allocation method would be quite arbitrary, given the fixed cost, public-good nature of information, and given the risky nature of research and development activities.

The figures that have been assembled thus far on intrafirm technology trade take an altogether different and less satisfactory tack. Data are reported as part of the balance-of-payments accounts on international transactions in royalties and fees, the former being payments for the use of copyrights and trademarks, the latter charges for the use of industrial patents. These figures are taken as an indicator of the volume of technology trade, although it is widely recognized that they are determined more by efforts of the multinational firm to minimize its global corporate-tax liability than by any economically-based attempt to measure the significance (or even the R&D costs) of the technology transfers that have occurred. Perhaps the best that can be said for these data is that they give some indication of trends in and the sectoral distribution of intrafirm technology trade, at least if effective tax rates do not vary too widely over time or across industries.

Table 1 shows the US balance of trade for royalties and fees associated with direct foreign investment for various years and trade partners, while Table 2 gives the breakdown of US receipts of royalties and fees by industry. The total value of royalty and fee transactions

TABLE 1
 US receipts and payments of royalties and fees associated with foreign direct-
 investment: 1967-81, selected years (\$ millions US)

	1967	1970	1973	1976	1979	1981 (prel.)
Total net receipts ^a	\$1,123	\$1,561	\$2,309	\$3,262	\$4,645	\$5,531
Developed countries	809	1,142	1,783	2,570	3,885	4,489
United Kingdom	153	217	302	448	719	795
European Community ^b	237	354	625	833	1,370	1,444
Other Europe	78	104	157	258	355	579
Canada	242	311	394	613	849	945
Japan	37	66	153	239	368	389
ANZSA ^c	62	90	152	179	224	347
Developing countries	315	418	525	693	969	1,301
Total net payments ^d	62	111	209	293	523	429
Developed countries	62	108	208	267	497	729
United Kingdom	11	19	20	8	102	247
European Community ^b	-3	2	23	25	164	83
Other Europe	11	21	91	132	141	215
Canada	43	62	73	137	163	269
Japan	-	4	1	-34	-75	-84
ANZSA ^c	-	-	-	-1	2	-1
Developing countries	1	2	1	27	25	-302

^a Represents net receipts of payments by US firms from their foreign affiliates for the use of intangible property such as patents, techniques, processes, formulas, designs, trademarks, copyrights, franchises, manufacturing rights, management fees, etc.

^b Original six members only.

^c ANZSA = Australia, New Zealand, and the Republic of South Africa.

^d Payments measure net transaction between US affiliates and their foreign parents.
 See footnote *a*.

NOTE: Detail may not add to totals because of rounding. Negative payments represent foreign liabilities to US-based subsidiaries. Beginning with 1979 (negative) receipts from international organizations are included in the total but are not shown separately.

SOURCE: National Science Board (1983) *Science Indicators 1982* (Washington, DC: National Science Foundation) 223

TABLE 2

Direct investment-related US receipts of royalties and fees^a by industrial area: 1981 (\$ millions)

Country	All industries	Total mfg.	Food products	Primary and					Electrical machinery	Transp. equip.	Other mfg.
				Chemicals	ferrous metals	Machinery					
Total net receipts	\$5,867	\$4,007	\$247	\$1,001	\$159	\$1,140			\$429	\$337	\$694
Developed countries	4,805	3,510	188	881	117	1,106			304	308	606
Canada	980	747	35	104	25	176			44	219	143
Europe	3,035	2,264	112	657	84	736			216	73	387
United Kingdom	832	669	34	197	28	217			31	36	125
West Germany	369	311	17	68	22	107			31	18	49
France	324	327	10	105	25	105			28	7	46
Japan	413	310	27	47	4	175			26	7	25
Developing countries	1,331	497	59	120	42	35			125	28	88

^a Includes film and tape rentals, which represent 6 per cent of total net receipts.SOURCE: National Science Board (1983) *Science Indicators 1982* (Washington, DC: National Science Foundation) 221

associated with direct foreign investment is quite small in relation to the total value of trade in R&D-intensive goods and in the total national expenditure on R&D activities.¹ The figures do show a steady trend increase in US receipts, with annual growth averaging over 12 per cent during 1967-81. More than 80 per cent of US royalty and fee receipts associated with direct foreign investment originates from subsidiaries in developed countries, with about half of the total being paid by affiliates located in Europe. Similarly, the developed countries, and especially the European countries, account for the bulk of US intrafirm technology imports.

Royalty and fees data provide a better measure of the value of interfirm trade in technology, although there is reason to believe that these figures may well underestimate the extent of such trade. This is so because the sale of technology is often accompanied by other considerations besides the direct licensing fee, such as provisions that call for tie-in sales, consulting contracts, agreements to purchase spare parts or intermediate inputs from the licensing firm, and the exchange of patent rights to other technologies, that is, cross-licensing agreements (see Mansfield 1981). Furthermore, as we shall argue in section 4 below, the market price of technology exports may well understate the economic significance of the information being provided, particularly in cases where several domestic firms offer competing technologies for export.

As is clear from Table 3, the amount that US firms receive for licensing to unaffiliated foreign residents is quite small, both in absolute magnitude and in comparison to the amount collected in fees and royalties associated with direct foreign investment. Only in the case of Japan have purchases of technology by unaffiliated parties historically accounted for more US receipts than have intrafirm payments. And even here, a reversal of this pattern has been emerging in recent years, as Japan has liberalized its restrictions on inward direct foreign investment.

There are two possible interpretations of this evidence, neither of which can be rejected on the basis of available information. On the one hand, some have argued that the small amounts of receipts from arm's-length technology exports is indicative of the difficulties associated with specifying the details of a technology in contract form, and the preference of firms for maintaining exclusive control over

TABLE 3

US receipts and payments of royalties and fees associated with unaffiliated foreign residents: 1967-81, selected years (\$ millions US)

	1967	1970	1973	1976	1979	1981 (prel.)
Total net receipts ^a	\$393	\$573	\$712	\$822	\$1,102	\$1,386
Developed countries	343	509	638	703	923	1,126
United Kingdom	55	56	74	72	103	128
European Community ^b	107	157	169	210	267	351
Other Europe	29	38	59	87	120	133
Canada	33	33	32	45	43	64
Japan	95	202	273	246	343	379
ANZSA ^c	24	23	31	43	48	71
Developing countries	50	65	74	120	179	260
Total net payments ^d	104	114	176	189	241	264
Developed countries	101	108	168	184	234	248
United Kingdom	32	35	53	77	93	93
European Community ^b	46	52	72	67	80	81
Other Europe	16	13	23	17	29	20
Canada	3	4	6	9	16	14
Japan	4	4	13	13	15	39
ANZSA ^c	—	—	1	1	1	1
Developing countries	3	7	9	6	7	16

a Represents net receipts of payments by US firms from their foreign affiliates for the use of intangible property such as patents, techniques, processes, formulas, designs, trademarks, copyrights, franchises, manufacturing rights, management fees, etc.

b Original six members only (Belgium, France, West Germany, Italy, Luxemburg and the Netherlands).

c ANZSA = Australia, New Zealand, and the Republic of South Africa.

d Payments measure net transaction between US affiliates and their foreign parents. See footnote *a*.

NOTE: Detail may not add to totals because of rounding.

SOURCE: National Science Board (1983) *Science Indicators 1982*. (Washington, DC: National Science Foundation) 224.

their know-how and its dissemination by exploiting it themselves through exporting and direct investment. But other observers have pointed to the reputed fact that between 1950 and 1978 Japanese companies have entered into more than 32,000 licensing and other technology-importing agreements with US concerns while paying only a total of \$9 billion US for these as *prima facie* evidence that US exports of technology services, though substantial in content and economic significance, have yielded less than their social value in return.² A determination of which of these interpretations is in fact correct would be an important input into future policy deliberations.

Finally, Table 4 documents the revealed comparative advantage of the United States in the production of technology. US receipts from royalties and fees far exceed those of all the other major developed country exporters of technology combined. The only other industrialized country with a positive balance in its technology trade is the United Kingdom, while Japan and West Germany are seen to be the largest net importers of foreign technologies.

2 REVIEW OF THE LITERATURE

The standard two-good, general equilibrium model of international trade offers a familiar framework for an initial exploration into the normative implications of technology exchange. McCulloch and Yellin (1982) have taken this as their starting point, with the assumption that initially the home country has sole possession of a technology to produce one of the two goods (computers). They consider the effect on domestic welfare of a transfer of this technology to the foreign country. Such a transfer is effected free of charge, and serves to make the technology accessible to an unlimited number of actual and potential foreign producers. Thus, technology transfer in their conceptualization preserves a perfectly competitive market structure in each country. Implicitly, they must assume that the property rights to the technology initially reside with the domestic government, and that these are passed from government to government before being widely disseminated by the recipient country. Their conclusion is easily derived, but instructive nonetheless. In an initial distortion-free situation, the home country must be harmed by the transfer if it continues to be an exporter of

TABLE 4

World trade in technology (\$ millions US)

	Receipts	Payments	Balance
USA (1979)	\$ 5,804	\$ 706	+5,098
UK (1978)	744	625	+119
Netherlands (1978)	277	446	-169
Canada (1980)	122	340	-218
France (1978)	346	679	-333
Italy (1978)	103	498	-396
West Germany (1979)	492	1,065	-573
Japan (1979)	321	1,274	-953

NOTE: The figures for Canada are derived from a survey of only those firms currently performing or funding R&D. These figures were converted to US dollars using the exchange rate reported in International Monetary Fund, *International Financial Statistics*.

SOURCES: Lawrence G. Franko (1983) *The Threat of Japanese Multinationals: How the East Can Respond* (New York: John Wiley & Sons) 23.

Statistics Canada (1982) *Annual Review of Science Statistics* (Ottawa: Education, Science and Culture Division) 55.

computers in the post-transfer equilibrium. The reason is that, in this case, the sole effect on the domestic economy of the transfer is to deteriorate the terms of trade at which computers are exported. This result points to a general principle that is bound to be present in any model of technology trade. That is, the introduction of trade in technology from an initial situation of trade in goods is not symmetric to the case of the introduction of goods trade from an initial situation of complete autarky. While the latter must confer social welfare gains, the former need not do so, since the terms of trade on prior goods trade can be adversely affected. (In fact, this is the presumption, since the technology-exporting country is likely to also be an exporter of the R&D-intensive good, and wider dissemination of the information is bound to lower the world price of this good).

McCulloch and Yellin (1982) and Rodriguez (1975) also study the optimal policy from the point of view of the technology-transferring country. The former authors show that the home country will always

benefit from charging some positive (*ad valorem*) royalty for its technology, and that the optimal royalty may in fact be prohibitive (that is, preclude technology transfer altogether). The latter proves, in a similar model, that if the technology exporting country winds up as an importer of the technology-intensive good, the optimal per-unit royalty should be accompanied by an import subsidy, so that the foreign producers are led to charge the monopoly price in their own market, but domestic consumers can obtain the product at foreign marginal factor cost. He notes that when the optimum policy package is implemented, the proceeds of the import subsidy are not earned by foreign suppliers, but rather accrue to the domestic government indirectly, in the form of higher royalty payments.

Similarly using the two-good paradigm, Brecher (1982) considers the gains from technology trade and optimal policy from the perspective of the technology-importing country. His initial situation is one where both countries can produce both goods, but the foreign country has exclusive rights to a superior technology for producing one of them. He assumes, somewhat arbitrarily, that the home country must pay a royalty exactly equal to the full amount of the extra output made possible at the ultimate factor-input combination by the use of the superior technology. He finds that a technology-importing country that must pay such a royalty, but is free to set its commercial policy optimally, may or may not benefit relative to a situation of complete prohibition of technology imports, depending on whether the technology is used by this country to produce its importable or exportable good. The intuition here is exactly the same as in McCulloch and Yellin, since the assumed royalty scheme eliminates any direct benefit from the technology imports, and all that is left is the (possibly deleterious) effect on the commodity terms of trade.

All of these analyses would suffer from two serious drawbacks if an attempt were made to apply their conclusions to cases of interdeveloped-country trade in technology. First, and most important, because they each embody the implicit assumption that the property rights to the technology being traded (or, more accurately, 'transferred') reside initially with one government (and ultimately with both governments), they are ill-equipped to deal with the issue of whether or not individual firms would *choose* to buy or sell

rights to some technology, and if so, what the equilibrium volume and price of technology trade would be. The relevant scenario for trade in technology services between industrialized countries is not one where a technology that is available to a large number of competitive domestic producers in one country is made available, possibly subject to the payment of some royalty fee, to an equally large number of producers in another country.³ Instead, the situation is almost always one in which a single firm in one country holds a patent to some process or product (or several firms hold patents that are close substitutes for one another), and contemplates licensing the use of that patent to one or more other firms, either domestic or foreign. When one considers optimal policy in these circumstances, the royalty rate itself is not necessarily a policy tool that the government can manipulate directly; it might well need to resort to indirect methods such as various taxes or subsidies, or patent laws, with their attendant effects on the equilibrium amount of technology that is traded.

The second drawback is that the studies discussed thus far take as their starting point a situation in which the technologies to be traded have already been developed, so that no further resources are being devoted either to R&D or to adapting the technology for use in a different environment. A major policy concern in the developed-country context should be the effect of technology trade and trade policy on the pace and direction of R&D in the exporting and importing countries. This is because the special characteristics of technology as information make it more than likely that the *laissez-faire* pace and direction of innovation would be socially suboptimal. And even where government intervention in the innovation process through subsidies, favourable tax treatment, and so on does occur, as is the case in all of the industrialized countries, one would want to know how the presence of technology trade and the implementation of policies that affect it alter the optimal levels of these R&D-related policies. How, for example, should the presence of foreign subsidies for R&D expenditures affect optimal domestic R&D subsidies or taxes?

Several authors have attempted to endogenize the R&D process in models of technology transfer. Connolly (1973) considers a static model in which resources can be diverted from the production of goods into an R&D activity in one country. Each country specializes in the

production of a different good, and the R&D activity yields information that improves the technologies for producing both goods. Connolly compares the production of technology that maximizes global welfare with that which maximizes welfare in the innovating country alone. In performing this comparison he assumes (again, without apparent justification) that the innovating country appropriates, by using royalty fees, the full value of the extra output produced in the noninnovating country with the improved technology, and he finds that the nationally optimal level of R&D exceeds the globally efficient one. The reason is that a marginal diversion of resources from goods production into R&D activities in the innovating country (starting at the globally efficient level of R&D) must improve its commodity terms of trade. However, this finding is of limited use in addressing the issues raised in the preceding paragraph, since Connolly does not explicitly model the R&D market and the incentives facing private innovators, and thus he cannot compare either the global or the national optimum with a market-determined, equilibrium outcome.

This criticism does not apply as directly to Pugel (1982), who models the R&D process as a third, competitive sector in the home economy. He assumes that the R&D output improves the technology of production of each of two goods in a Ricardian framework (in other words, that it is a public good), and that the production of information is subject to decreasing returns to scale. However, his analysis relies on the ad hoc assumption that the per-unit royalty fees are set by the domestic government, which also legislates mandatory dissemination. Pugel compares the amount of R&D activity and the levels of domestic and foreign welfare under four rather arbitrary royalty-fee structures: (i) the rate that achieves global efficiency; (ii) a rate charged to domestic firms that achieves domestic productive efficiency but neglects any induced terms of trade effects, with foreign firms paying zero royalties; (iii) this same rate for domestic firms, with foreign firms facing a prohibitive fee; and (iv) the rate for foreign firms that maximizes domestic welfare, given that domestic firms are charged as in (i).

A recent paper that does attempt to model both the incentives facing private producers of technologies and the equilibrium rate at which these technologies are traded is Feenstra and Judd (1982). These authors consider a trade model with many differentiated

products and a monopolistically competitive (product) market structure. Each new product (of which there are a potentially infinite variety) must be developed by the diversion of a fixed bundle of labour to an R&D activity. Technologies are country-specific, however, so that additional resources are needed to adapt an existing technology for use in a second location. As a consequence, there will be no incentive for any firm to produce the same good in both countries, provided that trade barriers are not too large. One country (the home) is assumed to have a comparative advantage in R&D, in that fewer labourers are needed to develop any and all products. In the equilibrium, all R&D takes place in the home country, which may or may not also manufacture goods. Feenstra and Judd offer two possible interpretations for their equilibrium. One is that the R&D industry is a competitive sector, which develops products and then sells the patent rights for a fixed fee to one of many potential entrants into manufacturing. The second is that R&D is conducted by integrated firms, some of which become multinational corporations by establishing their production facilities in the foreign country.⁴ Under this latter interpretation, the technology trade that results is of the intrafirm variety.

Since this model is isomorphic to that analysed by Krugman (1979), who instead regarded the product development expense as a general fixed cost of production, we know that the equilibrium entails gains from trade for each country relative to a situation of complete autarky.⁵ Feenstra and Judd did not investigate, however, whether the home country gains from allowing trade in technology, relative to a situation in which it engages in commodity trade alone. Instead, they examine the welfare implications for the home country of small policy departures from *laissez-faire*. They find that a small, uniform import tariff and a small tax on technology exports (applied to the royalty fee) are both welfare improving, although they recognize that the latter policy may not be feasible if the technology trade is actually intrafirm, in which case the royalty payments would exist in a bookkeeping sense only.

The Feenstra and Judd analysis is important in that it is the first to consider carefully the industry structure in both the R&D and product markets, and to determine the level and price of technology trade as an equilibrium outcome. It is carried out under some special

assumptions, however, such as those of perfect competition at the research stage, free entry into the product market, perfect symmetry between each of an infinite number of potential products, complete certainty in the R&D process and the absence of process innovation or indeed any form of competition in the individual product markets. There remains to be considered the normative implications of trade in technology services for a host of realistic, alternative assumptions about the market environment. In Section 4 we will sketch out how such an analysis of international licensing might proceed. But first we will discuss briefly the case of intrafirm technology trade.

3 INTRAFIRM TRADE IN TECHNOLOGY SERVICES

The policy issues posed by the occurrence of intrafirm trade in technology services are inextricably linked with those that relate to direct foreign investment in general. Indeed, it is difficult to conceive of a policy that would affect one but not the other.

The normative implications of foreign direct investment (FDI), with its attendant intrafirm transfer of technology, may differ according to the circumstances that give rise to the firm's decision to establish overseas production facilities. Several of the possible motives for FDI imply an enhancement of economic efficiency relative to all alternative modes of transaction, and thus create at least the potential for mutual benefits to home and host countries. Four examples illustrate this point. First, FDI may occur due to factor price differences across countries, if these imply that various activities in the production process can be performed at lowest cost in different locations. Then, if economies of scope are also present, FDI entails a savings of production costs relative both to the situation with integrated production by a single firm in one country alone, and to that with vertical specialization by different firms in each country and arm's-length trade. Second, when a firm's monopoly position in some good is protected by an internationally recognized patent, so that local production by domestic competitors is precluded, FDI by a foreign firm will provide a resource savings relative to a situation with international trade in this good if transport costs are high. Third, where international trade in equities is restricted, FDI represents a vehicle for portfolio diversification, and thus an improvement in the

international allocation of risk-bearing. Finally, overseas investment as a means of vertical integration can help to overcome the inefficiencies associated with bilateral-monopoly bargaining situations. In each of these cases, welfare gains for both the home and host countries can only be assured theoretically under rather restrictive assumptions about market structure, firm behaviour, and the effect of the FDI on the commodity terms of trade. Nonetheless, when the efficiency gains from FDI are substantial, there is a presumption that such gains will be shared.

Most arguments in support of restrictions on direct foreign investment are based on a 'second-best' type of reasoning. For example, where trade barriers are in force, and FDI represents a means of 'tariff jumping', such investment can be harmful to the host country. This is because the FDI causes an increase in production of the protected good in this country, exacerbating an existing distortion caused by the import impediment. In this case the obvious policy solution is to remove the trade barrier, but if doing so is not politically feasible, then a restriction on inward FDI may be a second-best alternative.

From the perspective of the source country, outward FDI is sometimes criticized on the grounds that it has deleterious effects on employment at home. Those who put forth this view assume the existence of some distortion in the home-country labour market, and note that the transfer of production activities abroad by multinational firms can exacerbate the problem. A valid argument for restricting outward FDI can be constructed on this basis, but it rests on the unlikely premise that all of the superior policy instruments for dealing with labour-market distortions are unavailable to the government.

Only a few new issues are raised for the evaluation of direct foreign investment when the associated intrafirm transfer of technology is considered explicitly. One such issue is that the establishment of an overseas production facility by some domestic firm may increase the extent of spillovers of new technologies to foreign firms. This can occur if proximity facilitates imitation, or if leakage results from the mobility of skilled employees between the innovative firm and its foreign rivals. Of course, the domestic firm that chooses to undertake FDI will have taken into account the implications of such spillovers for

its own profits. But external effects will be present if the foreign firms that obtain the new technology as a consequence of the FDI use this information in competition with other domestic companies. In this event, the overall effect of the FDI plus technology transfer on the welfare of the home country can be ambiguous.

From the point of view of the technology-importing country, that is, the host country for the FDI, a question that is sometimes raised concerns the 'appropriateness' of the technology being transferred to local market conditions. In particular, multinationals originating in industrialized countries have been criticized for transferring capital-intensive technologies to their subsidiaries in labour-abundant, less developed countries. But no valid argument for restricting direct foreign investment exists if all that can be established is that the employment generated by these multinationals is less than what 'might have been' had different and more 'appropriate' technologies been imported. To justify intervention, the policy analyst must construct the relevant counterfactual to the FDI, and show that intrafirm technology transfer somehow impedes the development of alternative technologies, and that there are no compensating benefits to the host country from the FDI.

In a developed country context, inward FDI may be an issue if it affects the incentives faced by local firms for conducting R&D. As we discuss in detail in the next section, normative analysis of policy options is made difficult by the fact that, theoretically, the private incentives for engaging in R&D may be either socially excessive or socially deficient, and that the effects of various policies on the equilibrium level of R&D investment often are unclear. But it seems possible that, in some situations, a restriction on FDI would induce domestic firms to develop competing products and processes where it otherwise would not be profitable for them to do so. This can be welfare improving if the market structure is imperfectly competitive, and if the international distribution of oligopolistic profits is at stake. (See, for example, Dixit and Kyle 1985, who argue analogously that import protection that promotes domestic entry into an industry can be welfare improving if the domestic market is oligopolistic.)

In conclusion we note that although intrafirm trade in technology may, in some circumstances, have deleterious welfare consequences, this does not seem to be a likely outcome. In part, this is because when

technology is transferred using direct foreign investment the property rights to the technology remain with the original owners alone. Thus, there is no real sense in which the price of the technology being traded can be too high socially from the point of view of the importing country, or too low from that of the exporting country. This, as we shall see, is in sharp contrast to the case of interfirm trade in technology, to which we now turn.

4 INTERNATIONAL LICENSING OF TECHNOLOGY

As in the literature on technology transfer, an analysis of international licensing might gainfully proceed in two stages. First we can study the welfare implications of technology trade for a given and exogenous state of technical advancement and distribution of patent rights. Then, we can endogenize the R&D process, and consider the effects of licensing on the incentives to innovate.

Licensing of existing innovations

The simplest starting point is a partial equilibrium or industry analysis framework, in which a single domestic firm has made a discovery that generates for itself a monopoly position for some new product. This firm contemplates licensing the technology to a foreign firm, either because factor costs are lower abroad and the firm does not wish to undertake direct foreign investment, or because the foreign firm has some specific knowledge that would allow it to market the product better abroad (and, perhaps, in the home country as well). Without needing to know anything more about the markets or the licensing arrangement (for example, such things as whether the domestic and foreign markets are segmented or integrated, whether the innovator will also produce the good in question in competition with its foreign licensee, and whether the licence will restrict the foreigners' domain of competition to the foreign market), it is possible to conclude that trade in technology, if it occurs, is welfare improving for both countries. The reason is that both the domestic and the foreign firm must themselves benefit from the ability to engage in technology trade, since any licensing contracts are entered voluntarily. At the same time, consumers worldwide can only benefit (or, at worst, be unaffected) by more widespread diffusion of the new

technology, since diffusion potentially leads to more competition and lower prices, or if the foreign firm becomes the sole producer, lower production costs and again lower prices. Thus, producer plus consumer surplus cannot fall in either country under a licensing regime.

The result, while at odds with one of the main conclusions of the technology transfer literature, is easily understood when an analogy is drawn with a standard result from the theory of trade policy. There, we know that a competitive industry will export more than the nationally optimal amount, and that an export tax raises the exporting country's welfare. Similarly, competitive imports are socially excessive, and an import tariff is welfare improving for the importing country. However, no trade policy is needed when exporting or importing is conducted by a monopolist, who will optimally exploit the country's monopoly power in trade. By analogy, when there is only one domestic agent on the supply side or the demand side of the market for technology, and no other domestic firms are active in the industry, there can be no pecuniary externalities associated with (excessive) technology sales or purchases.

This reasoning immediately suggests the next scenario to consider. Suppose there is a single domestic firm in possession of a new technology (in this case, a process innovation), but that now several domestic and foreign firms are also active in the industry. In this situation, licensing abroad by the innovator imposes negative externalities on the other domestic firms. These firms must now compete (in the foreign, and perhaps in the home market) with foreign rivals who have access to the superior technology. Their profits will be lower in the cum-licensing equilibrium than if no licensing were to take place. Indeed it is possible for the total loss in profits of the non-licensing domestic firms to exceed the gain to the innovator from the licence arrangement. Against this must be set the potential benefit to home consumers, if licensing leads to lower domestic prices.

As an extreme policy option, one might consider the effects of a complete ban on foreign licensing. It is possible for this policy to be welfare improving even if the no-licensing equilibrium is inferior to the free-trade-in-technology equilibrium. The reason is that the innovator, having determined the profit-maximizing number of firms to which it would like to license its technology, may be close to

indifferent as to whether it licenses to domestic or to foreign firms. A ban on foreign licensing may lead it to substitute domestic licensees, with only a small adverse effect on its profits. Similarly, domestic consumers may be little affected, if the substitution yields roughly the same number of competitors in the home market, and roughly the same proportion of these using the superior technology. However, the noninnovating domestic firms may reap significantly higher profits under a ban of foreign licensing, in which event they would become the licensees in place of the foreign firms.

An analysis of the situation when two or more domestic firms are in possession of new technologies that are close or perfect substitutes for one another is even more instructive. Consider a simple example in which two domestic firms each have developed a superior technology that allows them to produce widgets at unit cost c . A single foreign firm also is active in the integrated world widget market, but initially uses an inferior technology with a constant marginal cost of $C > c$. Imagine now the following depiction of the (two-stage) industry competition. Each domestic firm quotes a fixed licensing fee to the foreign firm, at which price it will allow the foreign firm to have access to its superior technology. This quote may, of course, be prohibitive. The foreign firm then purchases a licence at the lower of the two fees, if doing so raises its profits relative to no purchase at all. Finally, the three firms engage in Cournot competition in the product market. At the licensing stage, each firm is assumed to form accurate expectations about the subsequent Cournot levels of profit with and without licensing (that is, in the jargon of game theory, we solve for a subgame-perfect Nash equilibrium).

The surprising outcome in this example is that there always exists (for any demand function and unit cost pair) an equilibrium in which both innovators offer to license their technology to the noninnovator at a fee that is arbitrarily close to the licensors' direct licensing costs. In this equilibrium, each domestic firm expects that its rival will license to the foreigner if it does not do so. Since the ultimate Cournot outcome, at the product level, is the same no matter which of the two is the licensor, each realizes that any positive receipt for the technology is better than none at all.

This result, though somewhat sensitive to our assumption about the particular way in which the licensing market operates, is

suggestive of a more general conclusion about the possible implications of a free-trade policy for technology exports. That is, when two firms have access to technologies that are close substitutes, the competition between them to license to third parties is likely to be quite intense. This is due to the public-good nature of technology as information: since the marginal cost of dissemination to an additional firm is nearly zero, a bidding war can drive equilibrium fees to quite low levels. Perhaps the existence of such intense competition offers a partial explanation for alleged bargain rates at which Japanese firms have been able to obtain technologies from US corporations in the post-war years.

If the innovation is sufficiently large (but only then), another bidding equilibrium will also exist (for this example) in which no licensing occurs. Such an equilibrium can result if each domestic firm would lose more in profits net of royalty receipts by having the technology disseminated to the third firm than the foreign firm would gain by having access to the superior technology. When such an equilibrium exists, it yields higher profits for both domestic firms than does the other equilibrium with licensing at a zero (net of licensing costs) fee. For this reason, one could argue that it is the more plausible of the two candidate equilibria for the case of large innovations.

What would be the national welfare implications of a ban on foreign licensing in this example? It is possible to show that, if world demand for widgets is linear, any ban that is binding must raise domestic welfare. In cases where licensing would take place in the absence of government policy, the positive effect of the prohibition in augmenting domestic firms' profits always dominates its negative effect on the surplus enjoyed by domestic consumers. This is true under linear demand even if all of the surplus generated by widget consumption accrues to consumers in the home market. Whether this result generalizes to nonlinear demand and to different numbers of domestic and foreign firms remain as open questions.

A complete ban on foreign licensing is not the only policy option open to the domestic government, of course. The home country might be able to impose a tax on royalty transactions, although such a policy might be difficult to enforce in some circumstances, since as we have noted, compensation for technology trade can often be accomplished

for considerations other than direct fee payments. An alternative might be for the domestic government to establish a technology export board. Such an agency would be responsible for reviewing licensing contracts and approving their provisions. This would amount to an 'administrative price floor'. (A uniform price floor would make little sense, since technological services are fundamentally a heterogeneous product.)

If it were known to the potential licensors that technology offers at very low royalty rates would not be approved, then the intensity of the licensing competition would be mitigated. Any negotiations between licensors and licensees would take place in an altered context, with new threat points for the two parties. And though the establishment of such a procedure might appear to be a beggar-thy-neighbour policy in this context, it might be argued that it is a necessary one to ensure an equitable international distribution of the gains from technology trade. Furthermore, if the resulting increase in royalty fees were to have the effect of providing a greater incentive for investment in R&D, even the technology-importing country could benefit in the long run.

While the situations just described obviously are ones where the technology-importing country would benefit greatly from free technology trade, pecuniary externalities and excessive competition could also arise as policy issues for the importing country if the market were characterized by a somewhat different structure of competition. Consider, for example, the case of an industry with two domestic firms and a single foreign firm, with the latter holding exclusive patent rights to a low-cost production process. If the foreign firm were to offer to license its superior technology to one of the domestic oligopolists, that firm would be willing to enter into an agreement provided that the increment to its profits exceeded the proposed royalty fee. However, if the fee were set to extract most of the potential surplus, the loss in profits suffered by the noninvolved domestic firm could easily exceed the net gain enjoyed by the licensee. Domestic consumers would benefit, of course, but the overall effect on domestic social welfare could be detrimental.

The outcome would be even worse for the technology-importing country if the two domestic firms were to enter into a bidding war for the use of the patent. Each would be willing to bid up to the price that left it indifferent between purchasing the technology and not; but in

doing so, each would recognize that if its bid were not accepted, its rival would instead acquire the rights to the superior process. Thus, each would be led to bid more than the increment to profits relative to a situation where neither firm operated using the low-cost technology. In other words, the *interdependence of demands* for technology among oligopolists can create a situation where a single licensor can play one firm off against the others, and leave all with lower profits than would result if licensing from foreigners were not an option for any of them.

Once again, a policy alternative less extreme than a ban on technology imports would be the establishment of a government review board empowered to reject licensing agreements that seem likely to confer substantial negative pecuniary externalities on domestic third parties. It is interesting to note in this regard that under the Foreign Investments Act of 1950, Japanese firms are required to submit proposed licensing agreements with foreign firms for the approval of the Ministry of International Trade and Industry (MITI). There is evidence that during the 1960s and early 1970s MITI used this authority to influence both the scope of technology imports and the terms of purchase.⁶

Licensing and R&D incentives

We turn now to the long-run welfare effects of technology trade and trade policy via their influence on the intensity and scope of R&D activities. The complicating factor for normative analysis here is that, even before international licensing is considered, the relationship between the social and private incentives to undertake R&D investment is theoretically ambiguous. We have already argued that private incentives to innovate may be inadequate because of the *appropriability problem*. Since information has many of the attributes of a public good, the holder of a patent may find it difficult to exploit the full social benefit of an invention in all its potential uses. This is true because competitors may continue to operate using inferior techniques, or may imitate the innovator without paying anything for the information acquired through reverse engineering or employee defection. Some uses for the innovation may be in industries outside the patent-holder's field or expertise. And consumers of the goods produced using new technologies may realize increases in their

consumer surplus, if the innovator is unable to practise perfect price discrimination in the product market. For all these reasons, the private return to the innovator might fall short of the social return.⁷

The presence of competition at the R&D stage, where it exists, introduces a market bias that works in the opposite direction. The problem is again one of negative pecuniary externalities. Each firm, when it chooses the level of resources to devote to R&D, does not take into account the fact that some of the potential private gains from any discovery it makes will be realized only at the expense of its oligopolistic competitors. The development of a new product will allow the firm to steal customers from its rivals. A reduction in costs through process innovation facilitates an expansion of market share. In each case, the private return includes the full increment to oligopolistic profits, but the social return on the supply side is only the net gain in domestic producer surplus. It has been argued, for example, that the introduction of new, differentiated products may be socially excessive for this reason.

The preceding analysis indicates that the normative impact of foreign licensing on domestic welfare is theoretically complex. This is so for two reasons. First, the direction of divergence between social and private returns to R&D is ambiguous for a given licensing regime. Second, the effect of licensing on R&D incentives is mixed.

It is generally believed that having the opportunity to license technologies to foreign firms increases the private return to innovation. Indeed, supporters of free trade in technology services, presuming that increased R&D expenditures are always in the national interest, cite this alleged benefit as a primary justification for their non-interventionist policy stance (see, for example, Hufbauer 1980). However, if competition at the licensing stage is especially intense, this need not be the case. As we have seen, profits for each domestic firm having access to a new technology might be higher if all were prevented from transferring that technology to foreign rivals than if dissemination were to result at competitive licensing rates. Firms might be more inclined to invest in new products and processes if they were secure in the knowledge that domestic rivals making competing discoveries would not be able to transfer these to competitors abroad, even if this meant forgoing the opportunity to do so themselves.

The question of whether free technology trade encourages or discourages investment in R&D is even more complex than we have thus far suggested. For, what is relevant to this issue is not only the effect of overseas licensing opportunities on the potential returns to innovating, but also their effect on the profits associated with *not* innovating. A firm may be led to invest more in R&D under a regime of free technology trade than otherwise, not because it expects to realize significant gains from potential royalty transactions, but because it fears that if it does not keep pace it will find itself at a competitive disadvantage with respect to technology-importing foreign firms (as well as the progressive domestic firms). On the other hand, domestic firms may be discouraged from engaging in their own R&D by a policy and market environment that allows them to purchase particularly important technologies from foreign research laboratories if and as they emerge. It would be comforting to know that in such instances only projects for which social costs exceed benefits would be forgone, but unfortunately there is little on which to base such an optimistic judgement.

The purpose of this section has not been to suggest that restrictions on licensing transactions with foreign enterprises are justified in most, or even many, situations. Rather, we have tried to point out that conventional wisdom drawn from the literature on commodity trade is not immediately applicable, when what is being exchanged is information rather than goods. Likewise, the existing literature on technology transfer is not applicable to many of the questions of trade in technology. Careful consideration must be given to the market structure and institutional setting under which such trade takes place. Furthermore, the analysis must begin with an investigation of the incentives facing private firms, since these are most often the participants in the markets for technology creation and exchange. Only by understanding what the equilibrium outcome is likely to be under various policy regimes can we hope to evaluate the normative consequences of international trade in technology services and to formulate a sensible public policy response.

CONCLUDING REMARKS

The tone of this paper has been speculative and inquisitive, suggesting a framework for analysis, rather than providing definitive answers. Since it would be presumptuous to offer conclusions at this stage, we will end instead in the spirit of what has preceded by posing some subsidiary policy questions that relate to trade in technology services.

1 In instances where the appropriability problem is severe, a common government response has been the subsidization of R&D. How is the optimal subsidy level altered by the presence of technology transfer to and from foreign firms, or by presence of foreign R&D subsidies?

2 When (if ever) are restrictions on the export of technologies through licensing agreements desirable?

3 What is the optimal response to restrictions placed by foreign governments limiting the ability of their firms to engage in international licensing arrangements or in technology transfer through direct foreign investment?

4 Another possible channel for technology transfer that has not been discussed here is the formation of research and development joint ventures. Should foreign firms be permitted or encouraged to take part in domestic R&D ventures? Should the answer depend on whether or not the venture has received government funding or has been granted special exemption from antitrust statutes? How should a country react to the exclusion of its domestic firms from foreign joint ventures?

We believe that all of these questions (and more!) are subject to analysis using models of imperfect competition in innovating industries. It is essential that economics move beyond the perfectly competitive models of technology transfer that have been inherited from standard trade theory. The incentives for private firms to engage in innovation activity, and the form of competition for technology services are the essential elements upon which such analysis must be based.

NOTES

- 1 US exports of R&D-intensive goods, defined as products associated with industries with an average of 25 or more scientists and engineers engaged in R&D per 1000 employees and total R&D funding amounting to 3.5 per cent of net sales, totalled \$98.3 billion US in 1980 (see National Science Board 1983, 214). The same source reports (195) that total US expenditure on R&D in 1980 was \$62.9 billion US.
- 2 See Norris (1984). Lohr (1984) cites slightly different statistics (more than 30,000 contracts between 1950 and 1980 for an estimated \$10 billion US) in making much the same point. We have been unable to verify either of these figures.
- 3 It could be argued that these analyses do have relevance to some cases of technology transfer between a developed and a less developed country, especially in the agricultural sector. Such transfers often fall under the rubric of technical assistance, and one could ask what the effect of such assistance is on national welfare in the assisting country, as well as what the optimal charge for that assistance would be.
- 4 Krugman (1983) explores some further implications of this latter interpretation of the Feenstra and Judd model.
- 5 Strictly speaking, this conclusion relies on the further assumption, adopted by both Krugman and Feenstra and Judd, that the aggregate utility function has a constant-elasticity-of-substitution form.
- 6 Caves and Uekasa (1975, 152) argue that the MITI review process on several occasions reduced substantially the price that Japanese firms paid for imported technology.
- 7 These and other reasons why the market provides socially inadequate incentives to undertake R&D are discussed in Arrow (1962) and Shapiro (1984).

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Comments

Rachel McCulloch

University of Wisconsin

After a generation of efforts to liberalize merchandise trade, US negotiators have begun to focus on barriers to international trade in services, or, in older language, invisibles. As in the case of merchandise trade, there is a presumption – based on relative factor abundance¹ – that US comparative advantage will lie in the high-technology areas, and particularly in the production and export of technology itself. Yet this category of trade eludes satisfactory measurement or clear definition. Even at the domestic level, the production and sale of technology raises difficult issues concerning the appropriate role of public policy; conventional tools of economic analysis are conspicuously weak in predicting equilibrium outcomes in either the presence or absence of market intervention.

US policy towards trade in both goods and services has been largely predicated on the assumption that more trade is better, that our policy goal should be a balanced expansion of exports and imports. A vast body of theoretical research has illuminated the various plausible circumstances in which optimal policy intervention can improve welfare relative to free trade. Yet, as a group, the academic economists who have produced these arguments continue to believe that even in this very second-best world, real-life intervention is most unlikely to produce gains in aggregate welfare, whatever its other (largely political?) merits.

There are persuasive arguments underlying this scepticism. To begin with, the information requirements of optimal intervention are staggering. Moreover, theoretical analyses typically omit such complicating factors as retaliation by trading partners, supply

alternatives in a multicountry system, and spillovers to other sectors – factors that detract from elegance but may well dominate the outcome in real-life policy choices. Economists also suspect that the benefits from maintaining large, integrated markets may be substantial, but since we currently have no way to quantify these benefits, theoretical arguments typically ignore them.

These considerations address the difficulties faced by a policy official dedicated to the task of maximizing national welfare. But real-life protection is the result of a political process, one in which implications for national welfare are at best a minor concern. The historical record offers little support for the hope that future trade interventions will reflect different priorities. Also, an activist trade policy affects the incentives of private-sector agents. Despite the copious theoretical demonstrations of possible welfare gains from rent-seeking, few economists seriously anticipate that the diversion of managerial attention from production to lobbying will serve the national interest.

As Grossman and Shapiro have clearly demonstrated, the possibilities for Pareto improvements through optimal intervention are even richer in the area of high-technology trade, thanks to imperfectly competitive markets, significant scale economies, and the public-good character of knowledge. To this list I would add uncertainty, incomplete markets for risk-bearing, and the already pervasive role of the US government, both as the bankroller of R&D and as the major customer for many high-technology products and services, particularly those with defence applications.

On the basis of preliminary but suggestive theoretical arguments, Grossman and Shapiro cast doubt on many elements of the conventional wisdom regarding trade in technological services. They demonstrate that free trade in technology can be inferior to autarky, a result they see as a departure from intuition based on goods alone.² They also challenge the widely held view that restrictions on technology exports lower the private return to R&D and thus exacerbate the tendency (due to incomplete appropriability) for underinvestment in R&D. Their basic argument is that competing domestic suppliers of the same technology will tend to price technology exports near marginal cost, producing gains for foreigners at the expense of potential profits at home. The authors imply that just this sort of competition has allowed the Japanese to gain access to

US technology at bargain prices. While refraining from any policy prescriptions based on this preliminary analysis, they suggest that careful consideration should be given to the market structure and institutional setting of technological trade.

In summarizing their arguments regarding the effects of policies toward licensing, the authors state: 'The purpose ... has not been to suggest that restrictions on licensing transactions with foreign enterprises are justified in most, or even many, situations.... Only by understanding what the equilibrium outcome is likely to be under various policy regimes can we hope to evaluate the normative consequences of international trade in technology services and to formulate a sensible policy response.' They conclude with a research agenda of specific policy questions relating to trade in technology services that could be analysed using models of imperfect competition.

The questions that Grossman and Shapiro pose are interesting and substantive ones. Yet, given our accumulated experience with the theory and practice of optimal policy toward merchandise trade, I do not expect that even the total fulfillment of this ambitious research program would make a great deal of difference to the pros and cons of any specific policy proposals regarding trade in technology, for precisely the same reasons I listed earlier. Although policy must inevitably deal with situations of technology trade, I am uneasy with Grossman and Shapiro's implicit acceptance that the government's appropriate role is one of actively seeking out and correcting market failures. I personally would be content for now with correcting the distortions produced by existing government interventions.

As it happens, restrictions on technology trade have recently become an important policy issue in the United States. Specifically, there has been strong private-sector pressure for relaxation of US controls on export of technology with potential military applications. Under the Export Administration Act of 1979 and various earlier laws, the United States seeks to maintain its military superiority relative to potential foreign adversaries (mainly the Soviet bloc) through a system of export licensing. These licences are currently required for a wide range of high-technology goods and services exports, including 'dual-use' technologies, basically civilian technologies with potential military applications, such as personal computers. Licences are required for all exports, not just those to Soviet bloc nations, because of the possibility of further transfers.³

Although it is not necessary here to go into all the details of these strategic export controls, several points from that debate bear on issues raised by Grossman and Shapiro.

First, a major problem with US export controls is that in the majority of cases of dual-use technologies, there are alternative sources abroad for the same or similar products and processes. As a consequence, far from seeing export controls as a restraint on unprofitable competition among US suppliers of technological exports (the implication of Grossman and Shapiro's theoretical argument), US firms view the restrictions as an important factor in sales lost to foreign rivals. Administrative delays increase uncertainty and raise costs for technology-exporting firms even when the transaction eventually receives approval from the relevant authorities.

In addition, the debate concerning strategic export controls indicates that although advanced technologies often have an important public-good character, there is also a strong element of know-how involved in the export of technology. This kind of technological advantage has a relatively high degree of appropriability, and its export in the form of consulting or management services or through direct foreign investment⁴ raises rather different problems than the ones emphasized by Grossman and Shapiro. In particular, Soviet ability to appropriate US technology appears to be limited mainly by problems of acquiring know-how rather than licensing practices or even access to blueprints. Blueprints and specifications are easily obtained through standard espionage or even through commercial transactions with suppliers in third countries, despite costly efforts to restrict these practices; the US edge in military technology is maintained primarily by the high cost of transferring know-how.

An immediate implication is that appropriability is a fundamental issue in technology trade. While Grossman and Shapiro emphasize that incomplete appropriability is an important characteristic of advanced technology, they treat the degree of appropriability as given. In fact, appropriability of technology is endogenous, determined by the choices of firms within a given legal framework. Although no US firms are, to my knowledge, petitioning the government to restrict technology exports, many are pressing for stronger action to increase the legal appropriability of new technology – what is called protection of intellectual property. While the legal

framework is just one part of the problem of appropriability,⁵ it is one in which policy, both at the domestic and international level, can make a contribution. By reducing the divergence between private and social rates of return to innovation, legal protection of intellectual property creates potential gains in efficiency worldwide, rather than gains for one nation at the expense of others.⁶

NOTES

- 1 See Alan Deardorff's contribution to this volume.
- 2 In fact, even for trade in goods alone, free trade may be inferior to autarky if there is a domestic distortion such as a real minimum wage.
- 3 In principle, similar exports from other Organization for Economic Co-operations and Development nations are controlled through the Coordinating Committee for Multilateral Export Controls (COCOM). In practice, COCOM enforcement is deemed insufficient by the US Department of Defense.
- 4 See Alan Rugman's discussion in this volume.
- 5 The value of which depends critically on enforcement, as the example of Soviet access to 'protected' technology indicates.
- 6 Even so, there is a potential conflict of interest, especially in the short run, between technology-exporting and technology-importing nations because of the implied terms-of-trade effects of increased appropriability. Developing nations have generally resisted efforts by the United States and other technology exporters to increase legal protection abroad of imported technology.

Comments

Alan M. Rugman

Dalhousie University

Given the design of this workshop, I assume that my job is to bring a Canadian perspective to the policy discussion of international trade in technology services. This I shall attempt to do by focusing on the theory of the multinational enterprise (MNE) and some of the implications of the Grossman-Shapiro paper in such areas as:

- 1 The relevance of their theoretical work for Canadian/US trade in technology services.
- 2 The relevance of their survey of data and empirical questions, especially in comparison to literature on MNEs not cited by the authors.
- 3 The relationship of the Grossman-Shapiro work to an alternative model of strategic management of MNEs, which I shall develop and outline.

THE CANADIAN BALANCE OF TECHNOLOGICAL SERVICES

I wish to emphasize the danger of misinterpretation of statements in this section about the balance of trade for technological services for any nation. For example, the concluding paragraph of the Grossman-Shapiro paper states, quite correctly, that the United States and the United Kingdom are the only two nations to have 'a positive balance in ... technology trade.' In Table 4, Canada can be included with Japan and the European nations in a group with deficits in their technological balance of payments. But what does this mean? More importantly how is this to be interpreted for public policy?

Of course it means absolutely nothing for policy purposes, normative or otherwise. As every teacher of international economics points out in lecture one on the interpretation of the balance-of-payment accounts, sectoral deficits or surpluses are in themselves of secondary interest to an analysis of the structure of the nation's overall accounts. For example, Canada runs a massive deficit on its tourist account. Does this mean that Canadians should be confined to their northern prison in the winters until a matching number of summer visitors can be attracted? The foolishness of such a partial policy to balance this sector is obvious. Similarly, there is no good general equilibrium reason why the sectoral trade in technological services needs to balance for any nation. All that matters is that nations with technological deficits can find other sectors to generate offsetting surpluses, or that they accept the discipline of exchange rate adjustments.

In Canada's case a persistent deficit in the balance of trade in technological services is a simple corollary to misguided historical policies of tariff and nontariff protection. These policies encouraged foreign direct investment (FDI) instead of trade or licensing and resulted in a large amount of foreign ownership of the Canadian manufacturing sector (see Rugman, 1980). Once a national government sets itself up for FDI at the expense of these other modes of foreign entry then clearly a host of related implications fall out.

One of these is that most multinational enterprises (MNEs) will conduct the bulk of their R&D in the home nation rather than in foreign subsidiaries. (Rugman [1981] and Caves [1982] provide summaries of the literature supporting this point.) The MNEs do this to prevent the risk of dissipation of their R&D generated knowledge advantage. They use their internal markets to monitor, meter, and regulate the use of their firm-specific advantage in knowledge. In this manner MNEs solve the appropriability problem of knowledge as a public good. The MNEs establish property rights over an intermediate product that they decide to market on a global basis through an assessment of strategic alternatives.

In these circumstances Canada naturally achieves a persistent deficit in its technological balance of payments. The balance could be altered either by a change in policies, which would remove the incentives for FDI in Canada or, perhaps, by the growth of Canadian-owned MNEs. Industrial strategies proposed by such economically-

illiterate agencies as the Science Council of Canada are no solution since the protectionist elements embodied in such strategies will perpetuate the reasons for FDI while only adding to the resulting inefficiencies. For an example of this misguided thinking see the Science Council (1980) or world product mandates and the criticism of it in Rugman and Bennett (1982).

For these reasons I believe that the Grossman-Shapiro definition of trade in technology services is potentially misleading for policy. From the viewpoint of welfare economics what matters is consumer satisfaction from the use of *goods* that embody the technology services. The technology is an intermediate product, not of particular interest in itself. Therefore it is sufficient to focus upon trade in goods (by MNEs, or others) and examine the effects on *consumption*, rather than fall into the trap of looking at the *production* side of the technology transfer issue. Essentially it does not matter to Canadians if the manufactured goods they consume use technology services in goods produced by subsidiaries of an MNE in Canada, or a licensee, or are imported from the factories of the parent MNE. Neither does it matter very much to the MNE, provided it knows the rules of the game (that is, the state of government policies) and is thereby in a position to make a sensible decision about its choice of entry mode. In fact, the only group concerned with the issue of production of the technology in a host nation such as Canada are the nationalists. By definition, they pursue nonefficiency goals and their desires cannot readily be modelled by economists.

THE THEORY OF THE MNE AND MODELS OF TECHNOLOGY SERVICES

Grossman and Shapiro are on the right track when they emphasize the need for analysis of the issue of technology services using firm-level models where perfect competition does not hold. Yet their models of imperfect competition are also somewhat naive, particularly in the discussion of monopolistic rents, since each MNE is subject to global rivalry that serves to constrain these apparent excess profits. Basically my only quibbles are to do with elements of the theory where Grossman and Shapiro have not carried the dimension of global competition far enough.

For example, it is even more difficult to 'unbundle' technology from the MNE than they acknowledge. The MNE has a package of at least three inter-related skills in technology, capital, and management

(Dunning [1981] discusses this). These three advantages are mutually reinforced by the artful global strategic management of the MNEs top executives. If a nation state, such as Canada, attempts to pass legislation regulating the technology component, then the foreign MNE can use its ability in the manouvering of financial assets and its knowledge of markets to offset such constraints. The modelling of these dynamic strategic reactions by the MNE to changes in host government policies appears to be much too complicated for the technique of the models cited in sections 2 and 4 of the paper.

Instead, I would favour a case-by-case approach. After all there are only some 450 MNEs of any significant size in the world. According to Stopford's Directory (1982) these account for over 80 per cent of all the FDI in the world. The number of MNEs active in technology transfer to Canada is only a few dozen at most (see Rugman, 1983). I believe that analysis of the strategic decision-making of this relatively small set of MNEs is the way to proceed. Of course, such field-work is more expensive than armchair theorizing, but the potential benefits, both normative and positive, are larger.

Section 3 on intrafirm trade is again on the right lines but perhaps too kind in its treatment of 'second-best' arguments for restrictions on FDI. From what I recall of Harry Johnson's (1971) seminal lectures on distortions, about all we can say is that removal of the original distortion (tariff, labour-market imperfection, and so forth) at its source is first-best while any further interventions in the trade sector are not. Nation states themselves set up the regulations that induce FDI instead of trade or licensing. After they do this the choice of entry mode becomes part of the strategic planning of the MNE, a topic which is unfortunately neglected by Grossman and Shapiro.

Possibly the key sentence in their paper is at the start of section 3:

The policy issues posed by the occurrence of intrafirm trade in technology services are inextricably linked with those that relate to direct foreign investment in general. Indeed, it is difficult to conceive of a policy that would affect one but not the other.

Since I have argued above that most of the world's trade in technological services takes place within the internal markets of at most 450 large MNEs, this statement becomes even stronger than the

authors intended. In fact the theory of trade in technology services is not only 'inextricably linked' with the theory of the MNE, it is the *same* theory.

Section 3 needs to be expanded, especially as section 4 on licensing is largely irrelevant, since only about 10 per cent of all foreign activity is by licensing, with 40 per cent by FDI and 50 per cent by exports (see Buckley and Davies 1983).

MNEs AND THE THEORY OF STRATEGIC MANAGEMENT

What I should like to add to the agenda is a plea for better modelling of the strategic planning process of the MNE. The basic theory of trade in technological services should be a microlevel, firm-driven explanation of the choice of entry mode of the MNE. Therefore such models should always be constructed from the viewpoint of the strategic management team of the MNE, since this is the group faced with the decision of how to transfer technology. No bureaucrat or politician in a host nation state is actually involved in the R&D, engineering, production planning or marketing of a new product line that incorporates some new technology. So let us go into the MNEs and start some hands-on analysis that actually builds upon a detailed understanding of the institutions. This is where the action is and where our models should be coming from.

Once we move in this direction I believe that one critical factor will emerge. This is the overwhelming degree of international competition taking place among the world's largest MNEs. As we observe US-based MNEs being knocked against the ropes by Japanese and even some reborn European MNEs, it should become clear to even the most neanderthal trade economist that there is a lack of relevance in models of imperfect competition where rents arise for an MNE with 'monopolistic' technological advantage.

The ability of the MNE to solve the appropriability problem through the use of its internal market does not lead to monopoly profits, as erroneously reported by Grossman and Shapiro. Once the blinkers of trade theory are removed the MNE appears as a horse of a different colour. The typical MNE has a variety of product lines, in each of which it competes internationally in strategic groups. While Porter (1980) has analysed the particular entry and exit barriers that large corporations, including MNEs, can use to mitigate the extent of

international competition, such global rivalry can never be eliminated, especially in a dynamic sense.

More specifically it can be said that in these circumstances it is not always clear whether MNEs are operating against nature, that is, to overcome natural transaction costs, in which case internalization is efficient, or if MNEs are operating strategically, that is, to close markets, in which case internalization may or may not be efficient. The importance of this distinction between natural market imperfections such as transaction costs and the monopolistic ability of some MNEs to close markets (by product differentiation, scale economies, and so on) is distinguished by Dunning and Rugman (1985). In either case the intriguing question to analyse is the *source* of the original market imperfection and the manner in which the MNE has developed in response to it.

This raises an interesting point, on which I shall conclude. Do all nation states necessarily need or want trade in technology services? Canada, for example, has a group of immensely successful resource-based MNEs. Only one of the largest 20 of these MNEs could remotely be defined as a 'high-tech' MNE, namely Northern Telecom. All the others are doing very well by building on Canada's country-specific advantage in resources.

These mineral, forest product, liquor and other resource-based MNEs are frequently in mature industries. Yet due to efficient management they harvest, process, and market their product lines in a highly successful manner (see Rugman and McIlveen, 1984). Indeed, Canadian MNEs are probably less vulnerable to the chill winds of global competition than are US, European, and Japanese-based MNEs, in most of which technology is the basis for their firm-specific advantage.

As a Canadian commenting on the Grossman-Shapiro paper I am driven to conclude that most of our public policy and much of the literature is simply missing the point. MNEs can be globally competitive even when they have no firm-specific advantage in technology. Other attributes, such as management skills, marketing networks, access to capital and so on can be just as important. Trade in technology services in itself is a nonissue. Instead, we need to analyse the strategic positioning of our MNEs in order to find clues about the future prosperity of our nations.

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Global dimensions and determinants of international trade and investment in services

Robert M. Stern

University of Michigan

Largely as a result of US initiative,¹ issues relating to trade and investment in services have been given an important place on the international policy agenda. The present paper is intended accordingly to assess the available information on services and thus to inform both the positive and normative analysis of service-related issues from the standpoint of individual countries and the world as a whole.

In the following section, we begin by analysing the characteristics of services and note especially the many ambiguities that arise in defining and measuring services and distinguishing services from goods. We then consider the various alternatives for classifying services in terms of domestic transactions and output, international transactions in the balance of payments, activities of foreign affiliates, and a variety of analytical classifications of services that have been suggested in the literature. It will be evident from our discussion that services pose many conceptual problems and that the alternative methods of classifying services lack a unifying theme.

With the foregoing as background, we present in the second section below a number of tables relating to international transactions in services, based on balance-of-payments classifications for the world as

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a whole and for the United States, Canada, the European Economic Community (EEC), and Japan. These latter tables are broken down geographically in order to provide a more detailed picture of the origin and destination of traded services. A similar table is presented for the income and employment of US foreign affiliates. This information on the magnitudes of traded and investment-related services is designed to provide perspective on the relative importance of services in the aggregate and by type.

Because the available data on services are inadequate in terms of coverage and detail, there is an evident need for improved data for descriptive purposes and for use in analysing important economic influences and changes in policies. This includes as well information on restrictions affecting trade and investment in services. These matters are discussed in section 3.

In section 4, we consider the applicability of models of comparative advantage in analysing the determinants of trade and investment in services and comment on the comparatively few empirical efforts that have been based on these models. Much remains to be done to assess the costs and benefits of existing restrictions affecting services in order to provide a basis for possible negotiations to reduce or remove these restrictions. Finally, some concluding remarks are made.

1 CHARACTERISTICS AND CLASSIFICATIONS OF TRADE AND INVESTMENT IN SERVICES

Characteristics

In his especially insightful paper, Hill (1977, 317-18) makes the following distinction between goods and services:

A good may be defined as a physical object which is appropriable and, therefore, transferable between economic units.

A service may be defined as a change in the conditions of a person, or of a good belonging to some economic unit, which is brought about as the result of the activity of some other economic unit. This definition ... is consistent with the underlying idea which is inherent in the concept of a service, namely that one economic unit performs some activity for the benefit of another....Whatever the producer of the service does must impinge directly on the consumer in such a way as to change

the condition of the latter. Otherwise no service is actually provided.

It seems clear from the foregoing definitions and from actual experience that service activities are both numerous and diverse in themselves and in the changes that they effect in goods and persons.² To give an idea of the range and different types of services that exist, the following groupings, as noted in Government of Canada (1982, 11), are suggestive:³

- services *complementary* to trade in goods (e.g., transportation, insurance, banking, and advertising)
- services that *substitute* for trade in goods (e.g., franchising, rental, leasing, and repairs).
- services without a direct relationship to goods (e.g., banking, life insurance, professional services, real estate, telecommunications, data processing and information services, and travel).⁴

The foregoing definitions, categories, and examples are not necessarily exhaustive or mutually exclusive, and in fact it may often be difficult to disentangle what constitutes a good or service. Nonetheless, services do have the distinguishing characteristic that their production and consumption generally take place simultaneously, and as Hill (1977, 319) notes, services cannot be stored.⁵ Especially in the case of services that are embodied in and thus change the condition of goods, the question naturally arises whether it is analytically meaningful and practical to separate the two. Much will depend here on the nature of technological change and the ways in which the specialized activities of firms, to use Bhagwati's (1984a) terminology, are 'splintered' off into services from goods and goods from services.⁶ Thus, depending on the level of aggregation for recording transactions and particularly the time span involved, it may be quite difficult to distinguish goods from services and vice versa at the industry level.

This difficulty will become more pronounced especially if services that previously were purchased at arm's length from other firms are subsumed within the firm. That is, intrafirm transactions often cannot be measured accurately because there is no direct market analogue available to value them. Given the size and complexities of

most large corporations, in terms of both their domestic and multinational activities, it seems unlikely that it will ever be possible to identify separately the services embodied in goods within the firm. Thus, the changing relative importance of interfirm and intrafirm transactions will have a major impact on the measurement of the values of goods and services.

We mentioned above in footnote 4 that some services may be supplied by public as well as private enterprises in certain countries and, further, that a number of collective and pure public services are provided by governments. These latter types of services, particularly those involving education, medical care, public administration, and national defence, raise especially difficult problems of valuation since, as with intrafirm transactions, there may not be any direct market analogues that can be readily used. It is for this reason that input measures commonly serve to represent the value of services in these cases.⁷ Thus, services provided by public enterprises and government may not be measured commensurately with most private services, and there may be important intertemporal or intercountry differences depending upon the private-public composition. Finally, again as noted above, governments may pursue different regulatory policies vis-à-vis services, and the resulting promotion or restriction could result in national differences in the valuation and significance of particular services.

The preceding discussion was meant to illustrate some of the important characteristics of services and to call attention to the ambiguities encountered in trying to define and measure services and to distinguish services from goods. Inevitably one has to overlook many of these difficulties and deficiencies of measurement and confront the different ways in which services can be classified for reporting and analytical purposes. Let us now consider these matters.

Classifications

Data on services are commonly collected in most countries in connection with the compilation of national accounts and classified according to expenditures on final demand as well as industry of origin. Thus, in Table 1, which is adapted from Kravis (1983), we can see that government, housing, and education accounted for about 60

TABLE 1

Shares of service expenditures on final demand in the US, 1975

Expenditure category	Shares in US prices	Shares in international prices
Housing	24.1%	27.4%
Gross rent	20.3	22.6
Medical care	14.2	9.3
Education	12.9	8.7
Hotels and restaurants	7.2	8.6
Other	18.8	19.3
Public transport	1.1	0.9
Communication	2.6	3.0
Recreation	3.0	2.8
Barber and beauty shops	0.7	0.5
Government	22.8	26.7
TOTAL	100.0	100.0
Service expenditures as % of GDP	49.3	38.4

SOURCE: Adapted from Kravis (1983) 7.

per cent of total service expenditures in the United States in 1975. When medical care and hotels and restaurants are added, the percentage rises to more than 80 per cent. If expenditures are valued in terms of a common set of international prices,⁸ service expenditures as a percentage of GDP fall from 49.3 to 38.4 per cent. This indicates that the prices of services are lower in other countries, especially those with lower incomes than the United States.⁹ It is also evident that the composition of expenditure changes noticeably when international prices are used.

Data on the shares of services in GDP and employment classified by industry of origin are recorded in Table 2 for the United States for 1982. Services in the aggregate were 68.5 per cent of GDP, which, as Kravis (1983, 5) notes, reflects the relatively high proportion of value added to gross output in services and the importance of services as intermediate inputs. There are noteworthy differences among the sectors in terms of their shares of GDP and employment. Thus, retail trade, other private services, and government services account for a much larger proportion of employment than GDP. The opposite is the case for finance, insurance, and real estate.

TABLE 2
Shares of service industries in GDP and employment in the US, 1982

Industry category	Share of GDP in current prices	Share of total employment ^a
Transportation	5.1%	4.4%
Communication	4.1	2.0
Electricity, gas, etc.	4.3	1.3
Wholesale trade	10.2	8.1
Retail trade	13.5	20.8
Finance, insurance and real estate	24.4	8.6
Other private services	20.9	30.3
Government services	17.5	24.5
TOTAL	100.0	100.0
Services as % of total GDP	68.5	70.6

^a Total of full-time equivalent employees plus self-employed.
SOURCE: Adapted from US Department of Commerce (1983) *Survey of Current Business* 68-74 (July)

There are obviously many measurement problems that arise in the collection and classification of the expenditure and industry data and in the analysis of the economic factors determining the levels, shares, and changes in the various services categories for the United States and other countries. Since it would take us too far afield to discuss these matters here, we simply refer the reader to the literature.¹⁰

When it comes to the recording and classification of international transactions, it would seem natural to follow the separate breakdowns based either on expenditures on final demand or industry of origin. But, as Kravis (1983, 15) notes, the classification of services found in balance-of-payments accounts typically includes both factor and nonfactor services. The largest elements of factor services involve the payments and receipts of interest and dividends related to the use of foreign capital and wages paid to foreign workers, consultant fees, and so on. Nonfactor services, in contrast, are more akin to what is represented in the domestic classifications. But the balance-of-payments classifications used may be a mixture of the domestic classifications or there may be some domestic classifications that are not included in the balance-of-payments classifications.¹¹

A further important issue involves the sales and earnings generated by foreign affiliates. As noted above, investment income is typically a very substantial element in a country's balance of payments, but it may not reflect the total sales and earnings and the employment generated by the operations of foreign affiliates. To the extent that many service activities are location specific in terms of the close ties that are necessary between the providers and demanders of services, foreign direct investment may be the primary vehicle involved rather than trade itself. This is the case especially for the United States as will be noted below. Thus, the recording of domestic transactions involving the production and expenditure relating to goods and services will have an important foreign component depending upon the degree of foreign ownership and control in particular sectors. The balance-of-payments accounts will accordingly not reflect fully these investment-related transactions, except to the extent that they cross national boundaries.¹²

Thus far we have discussed the classifications that are actually used for recording domestic and international transactions in goods and services. It was noted that the recording of international transactions based on balance-of-payments classifications cannot be reconciled easily with the domestic classifications used for expenditures on final demand and for GDP by industry of origin. The recording and classification of services are further complicated by the presence of foreign affiliates whose activities may not be reflected systematically in the accounts of the country of the parent company.

Besides the classifications that are in current use in official recorded statistics, it may be of interest to consider some other classifications of services suggested in the literature for a variety of analytical and policy purposes. Thus, for example, services are often conceived of broadly as the *tertiary* sector in a developmental sense in relation to agriculture and manufacturing, and at times they have been identified as nontradables.¹³ Gray (1983, 378) has offered the following classification:

- Services derivative from trade in tangible goods (for example, transport, insurance, and related financing).
- Location-specific services (for example, tourism).
- Location-joining services (for example, passenger transportation and communications).

- General services provided usually in all nations (for example, financial services, professional services, and intranational communications).
- Intrafirm transactions.

An alternative developmental classification has been put forward by Katouzian (1970, 365-73):

- New services (for example, education, medical services, entertainment), that are sensitive to the growth in per capita income and leisure time.
- Complementary services (for example, banking, finance, transportation, and trade), that are related to the process of industrialization and urbanization.
- Old services (for example, domestic services), that have been subject to substitution effects related to the increase in per capita income and the availability of durable consumer goods.

Shelp (1981, 101-8) has suggested a breakdown according to the trade and investment orientation of services and the nature of existing national regulations:

- Investment-related services (for example, banking, professional services, employment services, advertising, leasing, and hotel and motel services).
- Trade-related services (for example, air and maritime transportation).
- Trade- and investment-related services (for example, insurance, communications, computer services, education and health services, motion pictures, construction and engineering, and franchising).

The classifications just noted are interesting because they suggest different frameworks for thinking about and analysing services. The classification that one chooses will of course depend on the purposes to be served. But inevitably it is necessary to rely on the information actually available currently and then to assess what additional information we would like to have for particular analytical and policy purposes. We turn next therefore to a brief examination of the global

magnitudes as reflected in the available data, and subsequently to the need for better data.

2 GLOBAL DIMENSIONS OF INTERNATIONAL TRADE AND INVESTMENT IN SERVICES

The main source of internationally comparable data on world trade in services is the International Monetary Fund's (IMF's) *Balance of Payments Statistics*. We noted earlier that the balance-of-payments classifications are far from ideal since they do not correspond exactly to the domestic expenditure and industry-of-origin classifications, and, further, they combine nonfactor and factor services. These limitations should be borne in mind. As indicated in Table 3, total services exports were valued at US \$350 billion in 1980 according to the Office of the United States Trade Representative (USTR 1983). This total includes shipment, other transportation, travel, labour and property income, and a residual 'other' category comprised mainly of private business and related services of various kinds. Official services and investment income are excluded from the services total shown. Total merchandise exports were US billion \$1,650 in 1980, which was nearly five times the total for services and about three-and-a-half times the total for services and investment income combined. It is evident that total services grew somewhat less than merchandise during the 1970s, but both grew significantly more than GDP.

A percentage distribution of the major categories of services exports for the United States and other major industrialized countries for 1980 is given in Table 4. Since 'other private services' cover many of the business and related services that figure importantly in current policy discussions, it is interesting to contrast their importance to the transportation and travel-tourism categories noted. Thus, for the United States, as noted in the last column, 'other private services' were 28.8 per cent of total US services exports. For the other countries listed, the percentages for 'other private services' ranged from 14.9 per cent for Norway to 56.4 per cent for Belgium. The relative importance of each of the four categories can be gauged for the individual countries from the details given in the table. For the twenty-five largest services exporters, which include several developing countries as well as the industrialized countries listed, 'other private services'

TABLE 3

Total world exports of service and merchandise, investment income, and GDP for 1980; growth rates for 1970-80

	Value (\$US billions)	Average annual growth, 1970-80
Services exports	350	18.7%
Merchandise exports	1,650	20.4
Investment income	225	22.4
Gross domestic product	9,389	14.2

SOURCE: Adapted from US Office of the United States Trade Representative (1983) 110.

TABLE 4

Percentage distribution of major categories of services exports in 1980 for the US and other major industrialized countries

Country	Shipment	Other trans- portation and passenger services	Travel and tourism	Other private services	Total	
					%	\$US billions
United States	9.9%	34.5	26.8%	28.8%	100.0	37.5
Canada	11.0	10.1	41.1	37.8	100.0	7.0
Japan	38.2	31.4	3.3	27.1	100.0	19.4
United Kingdom	15.5	30.1	18.6	35.8	100.0	37.1
France	4.0	32.3	25.0	38.7	100.0	33.0
Germany	15.6	19.3	19.4	45.7	100.0	33.8
Italy	14.2	14.6	38.0	33.2	100.0	23.5
Netherlands	19.6	38.6	9.0	32.8	100.0	18.6
Belgium	16.1	15.3	12.2	56.4	100.0	14.9
Switzerland	4.8	NA	48.5	46.7	100.0	8.4
Sweden	22.2	23.3	12.0	42.4	100.0	8.0
Norway	54.1	22.8	8.2	14.9	100.0	9.2
25 largest services exporters ^a	14.5	25.4	25.8	34.4	100.0	320.0

^a Includes the 12 industrialized countries above plus 13 developing countries.

SOURCE: Adapted from US Office of the United States Trade Representative (1983) 114.

were about one-third of the total services exports covered in this compilation.¹⁴ In terms of magnitude, therefore, the transportation and travel-tourism categories are the largest for the United States and most other industrialized countries.

The percentage shares in world services exports for the United States and other major industrialized countries are given in Table 5.¹⁵ It is evident that the United States is by no means dominant in any of the services-exports categories listed, and that its 9.8 per cent share of the total for 'other private services' is less than for West Germany, the United Kingdom, and France.¹⁶

In order to provide additional perspective on trade in services, Tables 6 to 9 present a breakdown of total merchandise trade, military sales, the major categories of private and official services, and investment income by geographic area for 1973 and 1983 for the United States, Canada, and Japan and 1973 and 1980 for the EEC. These are balance-of-payments data and thus reflect the problems of coverage and interpretation already noted. It can be seen in Table 6 that in 1983 the United States had a US \$10.6 billion merchandise trade deficit with Canada, a US \$1.9 billion surplus on services (item 3), and a US \$9.3 billion surplus on investment income. Canada accounted for somewhat more than 20 per cent of US exports and imports and for much smaller percentages of the total services and investment income. Western Europe and the rest of world ('All others') accounted for the bulk of US exports and imports of services and investment income. These percentages were typically larger than those for trade. The detailed entries in Table 6 provide an indication of the absolute amounts of exports and imports and the balances for the regions indicated. The entries in the 'Total' columns indicate the absolute and relative importance of the main categories listed.¹⁷

The breakdown for Canada in Table 7 shows the dominance of the United States for all the categories listed, with the other Organization for Economic Co-operation and Development (OECD) countries, mainly Western Europe, next in importance. For Japan, the data in Table 8 indicate a substantial merchandise trade surplus and a smaller services deficit with respect to the United States. Japan has relatively more merchandise trade with the rest of world ('All others') than the United States while its service proportions are about comparable with the United States. The data in Table 9 refer to the six EEC countries (EEC-6) for 1973 and for 1980, which was the latest year available. The

TABLE 5

Shares in world services exports in 1980 for the US and other major industrialized countries

Country	Shipment	Other transportation and passenger services	Travel and tourism	Other private services	Total ^b
United States	7.9%	15.9%	12.2%	9.8%	11.7%
Canada	1.6	0.9	3.5	2.4	2.2
Japan	16.0	7.5	0.8	4.7	6.1
United Kingdom	12.4	13.8	8.4	12.1	11.6
France	2.8	13.2	10.0	11.6	10.3
Germany	11.3	8.0	8.0	14.1	10.6
Italy	7.2	4.2	10.8	7.1	7.3
Netherlands	7.8	8.8	2.0	5.6	5.8
Belgium	5.2	2.8	2.2	7.7	4.7
Switzerland	0.9	NA	5.0	3.6	2.6
Sweden	3.8	2.3	1.2	3.1	2.5
Norway	10.7	2.6	0.9	1.2	2.9
Other countries ^a	12.4	20.0	35.0	17.0	21.7
TOTAL ^b					
Per cent	100.0	100.0	100.0	100.0	100.0
\$US billions	46.5	81.2	82.4	109.9	320.0

^a Refers to 13 developing countries.

^b Based on totals for the 25 largest services exporters in 1980.

SOURCE: Adapted from US Office of the United States Trade Representative (1983)

TABLE 6

United States exports and imports of merchandise and services by type and geographic area, 1973 and 1983 (\$US billions)

Type	Canada			Japan			Western Europe			All others ^a			Total			
	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	
1 Merchandise	1973	16.7	17.7	-1.0	8.4	9.7	-1.3	21.2	19.8	1.4	25.1	23.3	1.8	71.4	70.5	0.9
	1983	43.8	54.4	-10.6	21.7	41.3	-19.6	54.9	53.9	1.0	79.9	111.7	-31.8	200.3	261.3	-61.0
2 Military sales	1973	0.06	0.2	-0.14	0.05	0.8	-0.75	0.6	2.5	-1.9	1.6	1.1	0.5	2.3	4.6	-2.3
	1983	0.1	0.2	-0.1	0.4	1.3	-0.9	3.0	7.0	-4.0	9.2	3.7	5.5	12.7	12.2	0.5
3 Total services ^b	1973	2.1	1.8	0.3	1.7	0.8	0.9	4.7	6.0	-1.3	5.9	5.7	0.2	14.4	14.3	0.1
	1983	5.7	3.8	1.9	4.8	2.7	2.1	12.6	13.9	-1.3	19.1	17.5	1.6	42.2	37.9	4.1
a) Travel	1973	1.1	1.2	-0.1	0.3	0.1	0.2	0.6	1.8	-1.2	1.4	2.4	-1.0	3.4	5.5	-2.1
	1983	3.2	2.2	1.0	1.1	0.3	0.8	2.2	4.0	-1.8	4.9	7.5	-2.6	11.4	14.0	-2.6
b) Passenger fares	1973	NA	NA	NA	0.3	0.1	0.2	0.3	1.4	-0.9	0.4	0.3	0.1	1.0	1.8	-0.8
	1983	NA	NA	NA	0.7	0.2	0.5	1.1	4.1	-3.0	1.2	0.9	0.3	3.0	5.5	-2.5
c) Other transp.	1973	0.3	0.3	0.0	0.5	0.5	0.0	1.8	1.9	-0.1	1.8	1.9	-0.1	4.4	4.6	-0.2
	1983	0.8	0.7	0.1	1.9	2.1	-0.2	3.9	3.9	0.0	6.2	5.6	0.6	12.8	12.3	0.5
d) Fees & royalties ^c	1973	0.4	0.1	0.3	0.4	0.01	0.4	1.5	0.3	1.2	0.9	0.0	0.9	3.2	0.4	2.8
	1983	1.0	0.4	0.6	0.9	-0.1	1.0	3.9	0.5	3.4	2.1	-0.3	2.4	7.9	0.5	7.4
e) Other private services	1973	0.3	0.2	0.1	0.1	0.05	0.05	0.4	0.4	0.0	1.2	0.5	0.7	2.0	1.1	0.9
	1983	0.6	0.4	0.2	0.2	0.1	0.1	1.3	0.9	0.4	4.4	2.2	2.2	6.5	3.6	2.9
f) US govt. misc. serv.	1973	0.01	0.01	0.0	0.07	0.03	0.04	0.1	0.2	-0.1	0.2	0.7	-0.5	0.4	0.9	-0.5
	1983	0.05	0.1	-0.05	0.01	0.05	-0.04	0.2	0.5	-0.3	0.34	1.55	-1.21	0.6	2.2	-1.6

TABLE 6 (continued)

Type	Canada			Japan			Western Europe			All others ^a			Total			
	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	
4 Invest. income	1973	2.7	0.7	2.0	0.8	1.1	-0.3	3.2	5.4	-2.2	7.3	1.6	5.7	14.0	8.8	5.2
incl. US govt.	1983	11.7	2.4	9.3	4.5	4.4	0.1	22.1	23.9	-1.8	38.7	22.8	15.9	77.0	53.5	23.5
5 Distribution (%)																
a) Merchandise	1973	23.4	25.1		11.8	13.8		29.7	28.1		35.2	33.0		100.0	100.0	
	1983	21.9	20.8		10.8	15.8		27.4	20.6		39.9	42.7		100.0	100.0	
b) Total services	1973	14.6	12.6		11.8	5.6		32.6	42.0		41.0	39.9		100.0	100.0	
	1983	13.5	10.0		11.4	7.1		29.9	36.7		45.3	46.2		100.0	100.0	
c) Investment	1973	19.3	8.0		5.7	12.5		22.9	61.4		52.1	18.2		100.0	100.0	
income	1983	15.2	4.5		5.8	8.2		28.7	44.7		50.3	42.6		100.0	100.0	

^a Total minus the sum of Canada, Japan, and Western Europe.

^b For Canada this item will be understated due to the fact that data on passenger fares were not available.

^c The presence of a minus sign in an import column implies a negative import, i.e., a receipt instead of a payment.

SOURCE: Adapted from US Department of Commerce, *Survey of Current Business*, June 1984, 43 and 66-8; June 1976, 33 and 52-3.

TABLE 7

Canadian exports and imports of merchandise and services by type and geographic area, 1973 and 1983 (\$US billions)

Type	Year	US			Japan			Other OECD			All others			Total		
		Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.
1 Merchandise	1973	17.3	16.1	1.2	1.8	1.0	0.8	3.9	3.3	0.6	2.5	2.3	0.2	25.5	22.7	2.8
	1983	54.1	42.8	11.3	3.7	3.6	0.1	6.8	6.4	0.4	9.0	6.6	2.4	73.7	59.3	14.4
2 Total services	1973	2.8	3.7	-0.9	0.16	0.11	0.05	1.1	1.5	-0.4	0.34	0.59	-0.25	4.4	5.9	-1.5
	1983	6.2	11.7	-5.5	0.6	0.4	0.2	2.8	4.4	-1.4	2.8	1.5	1.3	12.4	17.9	-5.5
a) Travel	1973	1.2	1.1	0.1	0.02	0.01	0.01	0.2	0.5	-0.3	0.1	0.1	0.0	1.45	1.75	-0.3
	1983	2.2	3.2	-1.0	0.1	0.05	0.05	0.6	1.5	-0.9	0.24	0.16	0.08	3.1	4.9	-1.8
b) Freight & shipping	1973	0.8	0.8	0.0	0.1	0.07	0.03	0.4	0.4	0.0	0.2	0.3	-0.1	1.5	1.6	-0.1
	1983	1.7	1.7	0.0	0.35	0.14	0.2	0.6	0.5	0.1	0.6	0.4	0.2	3.2	2.8	0.4
c) Other services	1973	0.8	1.8	-1.0	0.04	0.03	0.01	0.5	0.6	-0.1	0.2	0.2	0.0	1.5	2.6	-1.1
	1983	2.3	6.8	-4.5	0.1	0.2	-0.1	1.6	2.4	-0.8	2.1	0.8	1.3	6.1	10.3	-4.2
3 Interest & dividends	1973	0.5	1.7	-1.2	0.01	0.01	0.0	0.1	0.3	-0.2	0.2	0.1	0.1	0.8	2.1	-1.3
	1983	0.9	5.2	-4.3	0.0	0.2	-0.2	0.6	3.2	-2.6	0.1	0.3	-0.2	1.6	8.9	-7.3

TABLE 7 (continued)

Canadian exports and imports of merchandise and services by type and geographic area, 1973 and 1983 (\$US billions)

Type	Year	US		Japan		Other OECD		All others		Total					
		Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.		
4 Distribution (%)															
a) Merchandise	1973	67.8	70.9		7.0	4.4		15.3	14.5		9.8	10.1		100.0	100.0
	1983	73.4	72.2		5.0	6.1		9.2	10.8		12.2	11.1		100.0	100.0
b) Total services	1973	63.6	62.7		3.6	1.9		25.0	25.4		7.7	10.0		100.0	100.0
	1983	50.0	65.4		4.8	2.2		22.6	24.6		22.6	8.4		100.0	100.0
c) Interest & dividends	1973	62.5	81.0		1.3	0.5		12.5	14.3		25.0	4.8		100.0	100.0
	1983	56.3	58.4		0.0	2.2		37.5	36.0		6.3	3.4		100.0	100.0

SOURCE: Statistics Canada, Balance of Payments Division, *Quarterly Estimates of the Canadian Balance of International Payments*, First Quarter 1976, 96, 100, 104, 108, 112, and First Quarter 1984, 64, 68, 69, 72, 73.

TABLE 8 (continued)

Type	US			Japan			Other OECD			All others			Total		
	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.
4 Distribution (%)															
a) Merchandise	1973	25.9	24.8	10.5	8.6		14.6	19.3		48.8	46.9		100.0	100.0	
	1983	29.6	19.1	12.6	6.3		9.2	12.1		48.6	62.3		100.0	100.0	
b) Total services	1973	44.1	39.8	22.0	24.5		10.2	11.2		23.7	24.5		100.0	100.0	
	1983	37.7	33.4	12.7	16.4		7.3	7.6		41.8	42.5		100.0	100.0	
c) Investment income	1973	52.0	47.6	8.0	23.8		2.8	4.8		36.0	23.8		100.0	100.0	
	1983	27.6	24.0	19.9	36.8		7.7	6.4		45.5	32.8		100.0	100.0	

a For 1973, the EEC comprises the original six plus the UK and for 1983, the present 10 member countries. The 1973 data are thus not strictly comparable with 1983.

SOURCE: Bank of Japan, Foreign Department, *Balance of Payments Monthly*, April 1975, 63-8 and April 1984, 69-72.

TABLE 9

EEC-6 exports and imports of merchandise and services by type and geographic area, 1973 and 1980 (\$US billions)

Type	Year	Canada			US			Japan			EEC-9			All other			Total		
		Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.	Exp.	Imp.	Bal.
1 Merchandise ^a	1973	1.3	1.4	-0.1	11.0	12.0	-1.0	1.2	2.7	-0.6	92.2	87.6	4.6	59.5	48.3	11.2	166.1	152.0	14.1
	1980	2.7	4.1	-1.4	25.1	40.4	-15.3	4.7	12.1	-7.4	264.6	258.4	6.2	200.5	208.3	-7.8	497.6	523.3	-25.7
2 Total services ^a	1973	0.4	0.3	0.1	6.9	5.6	1.3	0.5	0.4	0.1	16.1	17.3	-1.2	13.6	17.0	-3.4	37.5	40.6	-3.1
	1980	1.2	1.0	0.2	17.6	17.4	0.2	1.5	1.2	0.3	52.4	48.8	3.6	46.8	54.0	-7.2	119.5	122.4	-2.9
a) Transport ^b	1973	0.13	0.14	-0.01	1.8	2.1	-0.3	0.3	0.3	0.0	5.1	5.3	-0.2	5.0	5.2	-0.2	12.3	13.0	-0.7
	1980	0.35	0.53	-0.18	5.2	5.8	-0.6	0.8	0.7	0.1	16.4	15.1	1.3	19.1	19.6	-0.5	41.8	41.7	0.1
b) Travel	1973	0.13	0.06	0.07	1.4	0.7	0.7	0.08	0.02	0.06	4.8	5.2	-0.4	2.6	6.0	3.4	9.0	12.0	-3.0
	1980	0.23	0.25	-0.02	3.2	2.9	0.3	0.2	0.1	0.1	15.8	16.5	-0.7	7.9	16.9	-9.0	27.3	36.7	-9.4
c) Official	1973	0.06	0.03	0.03	1.9	0.2	1.7	0.0	0.01	-0.01	1.1	0.6	0.5	0.8	1.0	-0.2	3.9	1.9	2.0
	1980	0.17	0.04	0.13	3.8	0.6	3.2	0.01	0.02	-0.01	3.5	1.4	2.1	1.5	2.3	-0.8	9.0	4.4	4.6
d) Other private services	1973	0.07	0.08	-0.01	1.9	2.6	-0.07	0.14	0.1	0.04	5.1	6.1	-1.0	5.1	4.7	0.4	12.3	13.6	-1.3
	1980	0.44	0.19	0.25	5.4	8.1	-2.7	0.5	0.3	0.2	16.7	15.8	0.9	18.4	15.1	3.3	41.4	39.5	1.9
3 Investment income	1973	0.13	0.06	0.07	4.9	3.8	1.1	0.1	0.03	0.07	3.6	3.7	-0.1	4.4	3.8	0.6	13.1	11.4	1.7
	1980	1.0	0.3	0.7	19.9	17.3	2.6	0.8	0.5	0.3	23.6	24.5	-0.9	21.4	19.7	1.7	66.6	62.3	4.4
4 Distribution (%)																			
a) Merchandise	1973	0.8	0.9		6.6	7.9		1.3	1.8		55.5	57.6		35.8	31.8		100.0	100.0	
	1980	0.5	0.8		5.0	7.7		1.0	2.3		53.2	49.4		40.3	39.8		100.0	100.0	
b) Total services	1973	1.0	0.7		18.4	13.8		1.3	1.0		42.9	42.6		36.4	41.9		100.0	100.0	
	1980	1.0	0.8		14.7	14.2		1.3	1.0		43.8	40.0		39.2	44.1		100.0	100.0	
c) Investment income	1973	1.0	0.5		37.4	33.3		0.8	0.3		27.5	32.4		33.6	33.3		100.0	100.0	
	1980	1.5	0.5		29.8	27.8		1.2	0.8		35.4	39.3		32.1	31.6		100.0	100.0	

^a Italian data have been estimated

^b Includes insurance on transport.

SOURCE: Statistical Office of the European Communities (Eurostat), *Balances of Payments, Geographical Breakdown*, 1976, 112-31; and 1982, 100-17.

regional breakdown in this table refers to the EEC-9 and thus excludes Greece, which is contained in 'All others'. A substantial proportion of trade in merchandise and services as well as investment income evidently is accounted for within the EEC. Services and investment income are relatively more concentrated than merchandise trade vis-à-vis the United States as we saw above. As with Table 6, there is sufficient detail in Tables 7 to 9 for Canada, Japan, and the EEC-6 in case one wishes to analyse further the component entries and totals.

We had occasion above to note the important role played by the foreign affiliates of US parent companies in the production of goods and services around the world. Some of the activities of these affiliates are of course reflected in the trade in merchandise and services and the investment income flows recorded in Tables 3 to 9. But these international transactions understate significantly the contributions of foreign affiliates to output and employment in the host countries. In Table 10, a breakdown by sector and geographic region of the income and employment of all foreign affiliates of all US parents for 1977 is presented. For this purpose, petroleum-related services and construction have been separated from the remaining services categories noted, on the grounds that these two sectors seem qualitatively different from the others. Granting the separate listings of the aforementioned sectors, the total income of services affiliates (item 6) was US \$171.1 billion in 1977, which is four to five times greater than the international transactions recorded in Table 6 for the United States.

Income of services affiliates as defined in Table 10 was 25.2 per cent of the total for all sectors, and employment was 22 per cent. The petroleum and manufacturing sectors combined accounted for 71.7 per cent of total income and 71.2 per cent of employment. Within services, wholesale and retail trade (item 6a) was by far the most important sector, with banking, other services, and insurance next. Unfortunately the regional breakdowns are difficult to interpret because of missing data, but the importance of affiliate operations in Europe is clear.

It would appear from the foregoing tables that, while the income of foreign services affiliates is significantly greater than the magnitude of traded services for the United States, in both cases the services involved are relatively small compared to the other categories noted.¹⁸

TABLE 10

Income and employment of all foreign affiliates of US parents by industry and country, 1977
(\$US billions, thousands of employees)

Type	Canada		Japan		Europe		All other		TOTAL	
	Inc.	Emp.	Inc.	Emp.	Inc.	Emp.	Inc.	Emp.	Inc.	Emp.
1 Mining	3.7	38.0	0.0	0.0	0.2	2.8	5.9	147.0	9.8	187.8
2 Petroleum	17.7	58.4	23.2	21.4	67.4	117.8	130.0	172.3	238.3	369.9
3 Agriculture, forestry, and fishing	(D)	0.8	(D)	(D)	0.2	2.9	*	*	1.5	131.0
4 Manufacturing	50.2	615.0	16.8	185.5	126.8	2349.0	55.5	1705.5	249.3	4855.0
5 Construction	2.7	31.7	0.02	0.4	(D)	40.7	*	106.6	10.1	179.4
6 Services	20.1 ^a	323.3	12.9 ^a	183.7 ^a	81.0 ^a	658.0	33.0 ^a	414.4 ^a	171.1	1612.8
a) Wholesale and retail trade	13.6	199.9	11.4	169.3	63.2	408.4	16.2	213.0	104.4	990.6
b) Banking	0.5	2.8	0.9	2.8	11.8	59.6	10.0	69.8	23.3	135.0
c) Finance, excl. banking	0.9	9.7	0.4	1.9	1.2	8.1	1.7	7.5	4.2	27.2
d) Insurance	3.1	22.7	0.2	3.3	3.2	22.9	3.9	13.1	10.4	62.0
e) Real estate; holding co.'s	0.4	0.4	0.01	(D)	1.2	2.2	1.2	1.0	2.8	1.6
f) Transportation	(D)	12.4	(D)	(D)	0.4	(D) ^b	*	*	3.5	48.2
g) Communications & public utilities	(D)	23.8	0.002	(D)	(D)	(D) ^b	*	*	9.9	40.0

TABLE 10 (continued)

Type	Canada		Japan		Europe		All other		TOTAL	
	Inc.	Emp.	Inc.	Emp.	Inc.	Emp.	Inc.	Emp.	Inc.	Emp.
h) Other services	1.6	51.6	0.4	6.4	6.7	140.2	3.9	110	12.6	308.2
7 TOTAL	96.3	1067.8	53.4	392.3	292.7	3171.2	237.7	2710.7	680.1	7342.0
8 Distribution (%)										
a) Mining	37.8	20.2	0.0	0.0	2.0	1.5	60.2	78.3	100.0	100.0
b) Petroleum	7.4	15.8	9.7	5.8	28.3	31.8	54.6	46.6	100.0	100.0
c) Agriculture, forestry, and fishing	NA	0.6	NA	NA	13.3	2.2	NA	NA		
d) Manufacturing	20.1	12.7	6.7	3.8	50.9	48.4	22.3	35.1	100.0	100.0
e) Construction	26.7	17.7	0.2	0.2	NA	22.7	NA	59.4	26.9	100.0
f) Services	11.7 ^a	20.0	7.5 ^a	11.4 ^a	47.3 ^a	40.8	19.3 ^a	25.7 ^a	85.8	97.9

(D) Data in the cell have been suppressed to avoid disclosure.

* Computation was impossible due to the presence of cells with suppressed data.

a This figure will be biased downwards due to the presence of cells with suppressed data.

b The sum of 6f and 6g is 16.5.

SOURCE: US Department of Commerce, Bureau of Economic Analysis, *US Direct Investment Abroad*, 1977, April 1981, 35, 39.

In this light and in view of the attention that has been focused on services, it seems appropriate to ask whether the existing data may understate the true magnitudes of services. For example, it is stated in USTR (1983, 108):

A downward bias probably exists in the statistical estimations of most countries. In fact, international concern over the growing statistical discrepancy in the world balance of payments (\$100 billion in 1982) has focused increasingly on the potential under-reporting of service industry and other invisible transactions.

This contention is not examined further in the USTR study because the requisite data are not available. But my own guess is that unrecorded financial flows rather than services may account for the bulk of the discrepancy. Further, in discussing efforts to improve upon the existing data, the USTR focus (172-82) is on foreign affiliates whose operations we have seen already are only partially reflected in balance-of-payments transactions. The importance of trade in services may thus be understated in this sense, but it must be borne in mind that most of the services involved are investment related in terms of the presence of foreign affiliates.

It will be recalled from our earlier discussion of characteristics that there is a continuous, dynamic interaction between goods and services associated with changes in technology and firm specialization. It may be exceptionally difficult therefore to disentangle or debundle many kinds of goods and services for recording purposes, so that the question of whether services are underreported perhaps can never be answered unambiguously.

Finally, it might be argued that preoccupation with questions of measurement may well divert attention away from the fundamental changes in technology associated with the computer and telecommunications revolution that the world is experiencing currently. If this is the case, the appropriate focus might be on how to assess the importance and ramifications of these changes in technology and to forestall policies that may restrict the production and distribution of the goods and services involved.¹⁹

The data presented in Tables 3 to 10 evidently have many imperfections and gaps, but they suggest that trade and investment in services are relatively much less important in comparison to goods.

For the United States in particular, transport and travel-tourism receipts and payments are considerably larger than private, business-related services. Also, the United States is by no means dominant in world trade in services. While the income from US foreign services affiliates is substantial in absolute terms, it is relatively small in comparison to the affiliate income in manufacturing and other sectors. All of this is not to deny the importance of services, but rather to put them in perspective vis-à-vis all other sectors. The fact remains, however, that the documentation of trade in services is very limited as compared to goods. It may be useful accordingly to review briefly the recommendations for improved data that have been made in the United States and Canada.

3 THE NEED FOR BETTER DATA

In considering the need for better data on services, there are both positive and normative considerations that must be borne in mind. In the positive sense, it is evident that much greater attention has been given to the development of classifications and methods for reporting data relating to the production and trade in goods as compared to services. As a consequence, it is difficult to determine the levels and changes in particular types of services with the same kind of accuracy as in the case of goods. This is an important limitation because without such knowledge, the evaluation of policy options is fraught with much uncertainty. In recent years, however, this situation has been remedied somewhat by work being done on services in the United States, Canada, and elsewhere. A proposed classification for trade in services is outlined in McKellar (1982) and analysed in relation to the existing system of classification in Canada in Geehan (1982). This classification is reproduced in Appendix Table A1 below.

Two studies, Economic Consulting Services, Inc. (1982) and Lederer et al. (1982), were commissioned in the United States. These studies recognize the deficiencies in the reporting of services in existing balance-of-payments classifications and the importance of US foreign affiliates in service industries. Several recommendations were made in Lederer et al. (1982) to improve the services data on foreign affiliates by means of specially designed, more detailed, and more frequent investment surveys. The existing information available in both public and private sources for the major US services sectors was reviewed in the two studies as well as in USTR (1983, 172-2). Efforts

currently underway in the United States involve close co-operation between government agencies and the relevant industries for the purpose of effecting improvements in the collection and reporting of data on services. Presumably the same is true in other countries and in the OECD, which has a longstanding interest in services issues.

The increasing attention devoted to services reflects the recognition that there are many existing and potential barriers that may restrict trade and investment in services. As a consequence, to some extent in Canada and much more so in the United States, each of the major services sectors has been analysed in depth in an attempt to identify the major characteristics of the sectors and especially the problems and restrictions encountered both in trade- and investment-related services around the world.²⁰ Clearly one of the next steps would be to co-ordinate the efforts of the United States and the other major countries to standardize the available information and analyse the costs and consequences of existing restrictive measures affecting services.²¹

In designing such analysis, it might be useful to review the important theoretical considerations involved and to assess what we know to date from the available empirical studies. This is the subject of our next section.

4 DETERMINANTS OF INTERNATIONAL TRADE AND INVESTMENT IN SERVICES

What is the most appropriate theoretical framework to use in analysing the determinants of trade and investment in services? If the answer is that we should rely on the existing models of comparative advantage and foreign direct investment, are these models adequate for the purpose?

The theory of comparative advantage has of course been explicated at length over the past two centuries, and we currently have well articulated and rigorous theoretical statements of what determines the composition of trade and the gains from trade. There is also a large empirical literature dating from the early 1950s in which stylized versions of the theory of comparative advantage have been 'tested'.²² Although traditionally the theory of comparative advantage assumes international factor immobility, the activities of multinational enterprises and the international migration of labour have become too important to be ignored. As a consequence, there

have been numerous efforts in recent years to model the behaviour and consequences of multinational firms and the international movement of labour.²³

Some writers such as Hill (1977) and Herman and van Holst (1981) have argued that services are not amenable to the traditional analysis of exchange relationships because of their special characteristics as compared to goods. However, their contentions are not convincing,²⁴ and it seems reasonable therefore to use the existing models of comparative advantage as a point of departure in analysing services.²⁵ These models suggest that the composition of trade in services will depend on a nation's relative factor endowments, technology, realization of scale economies, product differentiation, and government policies. Presumably these same considerations apply to foreign direct investment involving services.

It appears appropriate in this light to adapt to services the empirical framework that has been used to analyse the determinants of trade in goods.²⁶ A notable attempt along these lines is the work by Sapir (1981) and Sapir and Lutz (1980, 1981), who analyse the determinants of international ocean freight, passenger services, insurance, and 'other' services as classified in the IMF balance-of-payments statistics, based on a cross-section of national data for as many as 52 industrialized and developing countries. The services trade data were for 1977 and the proxy measures for factor endowments and technology were calculated for reasonably adjacent years. The empirical results indicated the importance of physical capital abundance in explaining trade in ocean freight and passenger services, and human capital abundance in explaining trade in insurance and other services. Scale and locational factors were significant in a few instances. Given the usual caveats about the empirical implications of the underlying theory and the crudeness of the data, the results are nonetheless suggestive in lending support to the usefulness of the framework of comparative advantage as applied to trade in services.

Work by Saxonhouse (1983) is also pertinent here. He sought to investigate in a comparative context whether the large size of Japan's distribution system and the small Japanese exports of technology services were unusual by international standards. For this purpose, he used cross-section data for eleven countries for GDP originating in twenty-three sectors and technology trade in twenty-five sectors for

the years 1965, 1973, 1975, 1977, and 1979. His explanatory variables included national measures of capital stock, labour, educational attainment, distance, petroleum resources, iron ore, and arable land. Country-specific dummy variables were included in the pooled, cross-section regression estimates to allow for characteristics not included in the endowment and other variables. The results were that very few of the Japanese country dummies were statistically significant. Saxonhouse concluded therefore that the size of Japan's distribution system and its trade in technology services were not unusual by international standards compared with other major countries. This is a further example accordingly of the role that factor endowments and related variables may play in determining the structure of production and trade in services.²⁷

Finally we may mention work by Sapir and Schumacher (1984), who attempted to calculate the direct employment effects of changes in the composition of trade in commodities and services for the United States, Japan, and six of the major European countries for individual years between 1970 and 1981. They used primarily a sixteen-sector breakdown of manufacturing industries, measures of sectoral labour/gross-output ratios for 1977, and trade in constant prices for the individual years. Traded services were represented by only three sectors – transport, travel, and other private services – based on the classifications in the IMF balance-of-payments statistics; the labour-output ratios were calculated from domestic data. The difficulty here was that the labour-output ratios for services were based on the domestic production data for essentially nontraded services. As Sapir and Schumacher (1984) themselves note, the resulting ratios may thus overstate the labour content of trade in services, and it turned out that these ratios for services were in fact larger than for goods. Calculations were made of the employment effects of changes in the value of trade in both goods and services for each of the eight countries globally and with respect to the developing countries. In the latter case, an equal expansion of the export of services and the import of manufactures was shown to be detrimental to employment in the industrialized countries.

While the work by Sapir and Schumacher (1984) is highly suggestive, it has several limitations. As mentioned, it considers only direct employment effects, uses labour-output ratios for nontradable services to represent tradable services, and implicitly assumes that

goods and services are substitutes in trade for each other.²⁸ In principle, these limitations could be dealt with by using a more general model that allows for both direct and indirect effects in terms of an input-output structure and the associated imports and exports of goods and services for the individual sectors.²⁹ This would of course necessitate disaggregated data on the production and trade involved, which may be difficult to obtain for reasons mentioned earlier. But only if such data become available, will it then be possible to make more systematic calculations of the economic effects of changes in trade in goods and services.

None of the aforementioned studies dealt explicitly with the determinants of foreign direct investment involving services, which we have seen above to be especially important in the case of the United States. There is reason to believe, however, on the basis of work by Baldwin (1979) that the same types of factor endowment and related variables which may serve to explain the composition of trade in goods can be applied to foreign direct investment. This finding should carry over presumably to investment in services, although if it does in fact remains to be seen.³⁰

If it can be granted that international trade and investment in services are governed by the conventional economic and policy-related variables determining comparative advantage, this in turn will establish the basis for analysing the effects on economic welfare of the existing structure of trade and investment in services and possible changes in this structure. As mentioned above, considerable attention has been given in the United States to documenting the foreign restrictions faced by US firms engaged in trade and investment in services. In this connection, it would be interesting to review the restrictions on services around the world in light of the models of the political economy of protection and lobbying that have been developed in recent years in order to determine if the same considerations apply to services as to goods. I would not expect any important differences to emerge in such an analysis.³¹

Further, restrictions on trade and investment in services can be analysed using the same kind of cost-benefit analysis that is used for goods. That is, it should be possible to determine what effects existing restrictions have on consumers and producers and the return to factors and how these might change if restrictions were reduced or removed altogether. Again, the data requirements may be an

important limiting consideration, but this should not controvert the applicability of determining how economic welfare may be affected in given circumstances.

This leads to a final point of if and why there should be concern over existing and possibly new restrictions on trade and investment in services. The data on services presented earlier suggest that the magnitudes of trade and investment are relatively small compared to goods. Further, it can be argued that the restrictions affecting trade and investment in goods are far more important and damaging, and that the GATT system seems rather fragile and increasingly unable to cope with the situation.³² It is not surprising therefore that there has been reluctance in many countries to support the US initiative on services. It would be useful in this light if calculations could be made of the costs of existing or potentially new restrictions on services. We would then have a more firm foundation on which to base judgements and to consider the desirability and feasibility of seeking changes in policies for individual nations and groups of nations.

SUMMARY AND CONCLUSIONS

Our discussion suggests a number of conclusions, which are noted below.

- Services come in a variety of forms and in a variety of manners by which they change the condition of goods and persons. There is a continuous interaction between goods and services because of changes in technology and resulting changes in the activities carried on within and between firms. Intrafirm services and collective and pure public services provided by government involve difficult problems of measurement because of the absence of market analogues.
- Existing classifications of services in domestic transactions and international transactions used in balance-of-payments accounts involve many incompatibilities. The activities of foreign affiliates engaged in service industries are not reflected systematically in either of the foregoing classifications. It is difficult therefore to obtain an accurate indication of the level and changes in the values of services for particular sectors and overall. There is an obvious need accordingly for improved and more detailed data on services and for concordances among the various systems of classification used.

– Given the existing data, it appears that transportation and travel-tourism are the major categories of traded services in the United States and other major industrialized countries. While the income generated by US-owned foreign affiliates in service industries is substantial, manufacturing and other sectors are relatively much more important. It is not obvious therefore how large the benefits might be if existing restrictions on trade and investment in service industries were reduced or removed entirely and potential new restrictions avoided. More substantial gains might be realized accordingly by concentrating on the liberalization of restrictions affecting goods, while at the same time preparing the groundwork for liberalization efforts involving services.

– Trade and investment in services presumably are determined by the same influences that shape comparative advantage in goods. These influences include factor endowments, technology, and government policies. The same normative considerations involving economic welfare will apply to trade and investment in both goods and services. This reinforces the need already noted for better data in order to permit more effective analysis of alternative policies relating to services.

NOTES

- 1 See, for example, Aronson and Cowhey (1984), Brock (1982), Diebold and Stalson (1983), Gray (1983, Grey (1983a), IMF (1984), Sapir (1982), Schott (1983, 1984), Stalson (1983), and United States Trade Representative (1983).
- 2 In his conception and examples of services to persons, Hill (1977) apparently has households and individual consumers in mind. However, as will be evident from our ensuing discussion, there may be many kinds of services rendered to businesses that are only indirectly reflected in the goods being produced. Perhaps one can consider the entity of a business firm as a person in this light.
- 3 The Government of Canada report includes services embodied in goods as a separate category, but there is no clear way of distinguishing the services involved, as we note below. It might be argued nonetheless, as Michael Leidy has suggested to me, that using Lancaster's framework of product attributes, we could think of goods in terms of the services they provide, and that there may be some services existing independently of goods.

- 4 The examples given here relate primarily to traded services, and no distinction is made between the services provided by private or public enterprise. Hill (1977, 331-6) discusses the provision of collective and pure public services (for example, education, public health, roads, public administration, and national defence) involving important elements of externalities and can be characterized as 'unsolicited' services. The provision of collective and pure public services may have an important bearing on a nation's domestic economy and external trade by affecting the cost and availability of many private services. This will be the case, as well, if governments undertake regulatory policies that may limit or protect the activities of its service sectors.
- 5 Thus, as Herman and van Holst (1981, 9) point out, one can think in terms of a stock of service-rendering capacity that must be available to meet demand. This may in turn clarify Hill's contention (1977, 318) that services cannot be analysed in terms of conventional market exchange because they cannot be transferred like goods between economic units. Hill may be correct in a narrow sense, but surely firms and households will be sensitive to price differences among the entities offering services for sale.
- 6 Bhagwati's conception is that as specialization emerges owing to economies of scale, service activities will be splintered off and become part of interfirm transactions. He views this as technically progressive. On the other hand, when goods are splintered off from services as a result of technological progress, we may be left with relatively unprogressive service sectors as conventionally measured.
- 7 See Kravis, Heston, and Summers (1982, 133 seq.) for a careful empirical analysis of alternative measures of these types of services.
- 8 For more details, see Kravis (1983, esp. 6-8).
- 9 See Bhagwati (1984b) for a theoretical analysis of why services are cheaper in poor countries.
- 10 See especially Bhagwati (1984a, b), Economic Consulting Services, Inc. (1981), Government of Canada (1982), Hill (1977), Katouzian (1970), Kravis (1983), Kravis, Heston, and Summers (1982, 1983), Krommenacker (1984), Saxonhouse (1983), Shelp (1981), Summers (1983), and United States Trade Representative (1983).
- 11 Thus, Kravis (1983, 15-16) cites transportation as a standard category in the industry-of-origin classification while the component involving passenger fees reflects a final-demand category. He notes further that trade is an important domestic

service industry in its own right, but that distributive services are considered part of the value of the goods or services when they are traded internationally. The reason is that nonfactor services are measured based on gross sales revenue or purchase values when they are involved in international transactions, while in domestic transactions they are measured in terms of value added.

- 12 If foreign affiliates trade with third countries, these transactions will of course not be included directly in the accounts of the country of ownership of the affiliates.
- 13 As Katouzian (1970, 363-5) notes, primary, secondary, and tertiary categorization was popularized especially by the writings of A.G.B. Fisher and Colin Clark. The treatment of services as nontradables reflects the manner in which industry-of-origin and trade data are organized. In particular, services may be treated as nontradable according to conventions of national income accounting. Thus, for example, in their computational model of world production and trade, Deardorff and Stern (1981) classify ISIC sectors 2 and 4 to 9 as nontradables.
- 14 See United States Trade Representative (1983, 114) for the complete list of countries. The twenty-five countries combined accounted for more than 90 per cent of the world totals.
- 15 As indicated in the table and in the preceding footnote, the totals refer to the twenty-five largest services exporters.
- 16 This point is made also by Kravis (1983, 25).
- 17 The sum of fees and royalties (item 3d) and other private services (item 3e) presumably corresponds to the category of 'Other private services' in Tables 4 and 5 above.
- 18 This is the conclusion reached by Kravis (1983, 23 and 29) in terms both of the relative importance and growth experiences of most services for the United States.
- 19 In this connection, see Dudley and Werner (1984), Feketekuty and Aronson (1984), Frazee (1983), Grey (1983b), Lawrence (1984), and Sauvart (1984).
- 20 See, for example, Government of Canada (1982), Krommenacker (1984), Schott (1983), Shelp (1981), United States Department of Commerce (1980), United States International Trade Commission (1982), and United States Trade Representative (1983).
- 21 For some recent analyses of particular sectors and countries, see Feenstra (1984), Grubel (1984), OECD (1983), and Tucker et al. (1983).
- 22 See the various chapters in Jones and Kenen (1984) for in-depth analyses and surveys of the important recent theoretical and empirical developments in international trade theory and policy.

- 23 Caves (1982) is a useful source on foreign direct investment. See *Journal of International Economics* (May 1983) for a symposium on international factor mobility.
- 24 See footnote 5 above for comment on Hill's contention. Herman and van Holst maintain that it is necessary to 'disentangle the causality chain' in order to understand the basis for comparative advantage, but they are not explicit on how to accomplish this.
- 25 In this connection, see Bhagwati (1984b), Hindley and Smith (1984), and the preceding contributions by Deardorff and by Grossman and Shapiro.
- 26 Some work has been done to develop forecasting equations for trade in services, but these efforts usually stress financial determinants as in the case of investment income or the effects of changes in relative prices and income on the demand for particular types of services (see, for example, Proctor 1982).
- 27 The determinants of Japanese technology trade have been analysed in a factor-endowment context in Vestal (1985).
- 28 See United States International Trade Commission (1982) for some estimates of the amount of US merchandise exports related to the activities of selected service industries, and what the effects on exports might be if existing barriers to trade in services were reduced.
- 29 It might also be useful to allow for intercountry effects in a multilateral setting, as, for example, in the Michigan model of world production and trade. See Deardorff and Stern (1981).
- 30 In his paper above, Deardorff has some theoretical reservations on this matter that suggest that comparative advantage may not apply when considering certain activities of multinational firms. Also, see the preceding paper by Grossman and Shapiro, who argue that trade in technology services is best understood using a framework of imperfect competition.
- 31 See Kravis (1983, 30) for a classification of service industries involved in current US trade-liberalization efforts, classified by the motivations of foreign restrictions. These motivations include cultural identity, financial stability, national sovereignty or security, and the protection of the public from monopoly power, fraud, or other undesired practices not easily discerned by consumers.
- 32 This view is expressed forcefully in Grey (1983a).

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APPENDIX

TABLE A1

Proposed classification for international trade in services

Section 1: Services directly related to people

11 *Health services for people*

- 111 Consulting, diagnostic and therapeutic services, medical, dental, and similar
- 115 Hospital and similar patient care services
- 119 Other health services directly related to people

12 *Education services*

- 121 General programs of elementary education
- 122 Programs of vocational education at the primary level
- 124 General programs of secondary education
- 125 Programs of vocational education at the secondary level
- 127 General programs of post-secondary education
- 128 Programs of vocational education at the post-secondary level
- 129 Programs of education not definable by level

13 *Cultural and recreational services*

- 131 Live performances, theatrical and similar
- 133 Sports events, live
- 134 Film rental service
- 135 Performance and broadcasting rights
- 139 Other cultural and recreational services

14 *Food and accommodation services for people*

- 141 Food and beverage services
- 143 Accommodation services for those not requiring special services
- 144 Accommodation for those requiring special services

15 *Correctional services*

- 150 Correctional services

17 *Employment services*

- 171 Employee recruitment and employment placement services
- 172 Personnel services except recruitment and placement
- 179 Other services related to employment

19 *Other services directly related to people*

- 191 Personal grooming services
- 192 Personal counselling and guidance services
- 193 Religious services
- 199 Other services directly related to people, n.e.s.

Section 2: Services for the propagation and care of plants and animals

21 *Consulting services related to plants and animals*

210 Consulting services related to plants and animals

22 *Health and nutrition services for plants*

221 Applications of plant pesticides

223 Nutrition services for plants

229 Other health services for plants

23 *Services for plant propagation and harvesting*

231 Services related to logging

233 Soil preparation, seeding, planting, and related services

239 Other services for the harvesting and management of vegetation

25 *Health services for animals*

250 Veterinary and related services

29 *Food, accommodation, propagation, and miscellaneous services for animals*

291 Food and accommodation services for animals

299 Other services related to animals and animal care

Section 3: Services related to land, water, air, and minerals

31 *Surveying, consulting, and mapping services, land and resources*

311 Consulting services related to land and other natural resources

312 Laboratory services related to land, water, air, and mineral resources

313 Mapping, surveying and weather forecasting services

32 *Renting, buying and selling of land and natural resources*

320 Renting, buying, and selling of land and resources

34 *Mining and well drilling services*

341 Petroleum field exploration, development, and operating services

344 Ore milling services

349 Other mining and earth moving services

39 *Other services related to land and the environment*

390 Other services related to land and the environment

Section 4: Services related to buildings and other fixed assets

41 *Architectural, engineering, design, decoration, and appraisal services for buildings and other fixed assets*

- 411 Architectural, engineering, and design services for buildings and other fixed assets
- 419 Decoration, appraisal, and other services related to the construction of buildings and other fixed assets
- 42 *Renting, buying, and selling of buildings and other fixed assets*
- 421 Rental services for buildings, residential or non-residential
- 423 Rental services for fixed assets except buildings
- 425 Buying and selling services, buildings and other fixed assets
- 44 *Repair, renovation and related construction services, buildings and other fixed assets*
- 441 Repair services, buildings and other fixed assets
- 443 Renovation and construction services, buildings and other fixed assets
- 45 *Management and maintenance services, buildings and other fixed assets*
- 451 Management services, buildings and other fixed assets
- 453 Maintenance services, buildings and other fixed assets
- 49 *Other services related to buildings and other fixed assets*
- 491 Services of transportation terminals and facilities
- 493 Other services related to buildings and other fixed assets, n.e.s.

Section 5: Services related to the manufacture and marketing of goods, except transportation

- 51 *Design and manufacturing services for transportable goods*
- 511 Designing and preparing drawings for goods to be manufactured
- 513 Custom manufacture of goods from others' materials
- 52 *Storage of goods except live storage of vehicles*
- 521 Food storage, refrigerated or not, not bonded
- 523 Non-food storage, refrigerated or not, not bonded
- 525 Bonded storage services
- 52 *Marketing and rental services, transportable goods*
- 541 Services of purchasing and sales agents
- 542 Rental of transport equipment with or without operators
- 544 Rental of industrial machinery and equipment except transport equipment
- 548 Rental of transportable goods, n.e.s.
- 549 Franchising services
- 56 *Maintenance, repair and servicing of manufactured goods*
- 561 Maintenance, repair and servicing of household and personal equipment
- 562 Maintenance, repair and servicing of transport equipment

- 569 Maintenance, repair and servicing of other manufactured goods
- 59 *Services related to the manufacture and marketing of transportable goods, n.e.s.*
- 590 Services related to the manufacture and marketing of transportable goods, n.e.s.

Section 6: Transportation services

61 *Air transport service*

- 611 Air transport, passenger
- 613 Air transport except passenger

62 *Water transport service*

- 621 Water transport, passenger
- 623 Water transport except passenger

63 *Rail transport service except urban transit*

- 631 Rail transport, passenger, except urban transit
- 633 Rail transport service except passenger

64 *Urban transit and other passenger transport services*

- 641 Urban transit service
- 643 Bus transport service except urban transit service
- 645 Other passenger transport services
- 649 Services incidental to passenger transport

66 *Truck transport services*

- 660 Truck transport services

67 *Pipeline transport service*

- 670 Pipeline transport service

69 *Other non-passenger transport and services incidental to transport*

- 691 Other non-passenger transport services
- 695 Services incidental to transport, n.e.s.

Section 7: Services related to records and information

71 *Information originating services*

- 711 Research services, basic and applied
- 712 Writing services, verbal
- 713 Composing and arranging services, musical and choreographic
- 715 Photographing (including video taping) services
- 716 Sound recording services

719 Other information originating services

72 *Information processing services*

721 Computer services

722 Accounting, auditing and bookkeeping services

729 Other information processing services

73 *Communication services*

731 Information transmission, postal, telegraph, and cable

733 Information transmission, broadcasting

735 Information transmission, n.e.s.

737 Communication equipment, circuit, and channel services

74 *Publicity services*

741 Advertising services

744 Sales promotion and publicity services except advertising

79 *Other services related to records and information*

790 Other services related to records and information

Section 9: Services of general application

91 *Management and administrative services, n.e.s.*

911 Management and administrative services, except public administration

915 Public administration and management services, n.e.s.

92 *Legal, judicial, and legislative services*

921 Legal services

925 Judicial and legislative services

93 *Protective services*

931 National defence services

932 Police and crime prevention services

934 Fire protection services

939 Protective services, n.e.s.

94 *Insurance services*

941 Health and accident insurance

942 Life insurance

945 Insurance services except health, accident, and life

96 *Financial services*

961 Deposit and loan services

963 Money transfer and foreign exchange services

965 Security and commodity exchange and brokerage services

- 969 Other financial services
 - 99 *Miscellaneous services n.e.s.*
 - 991 Consulting services n.e.s.
 - 999 Other miscellaneous services n.e.s.
-

SOURCE: McKellar (1982, 1-7).

Comments

Irving B. Kravis

University of Pennsylvania

Stern's wide-ranging paper is organized around four topics: the characteristics and classifications of trade and investment in services; the global dimensions of international trade and investment in services; the need for better data; and the determinants of international trade and investment in services. He comments also on the policy aspects of international service transactions. I find myself in agreement with most of his conclusions, and I shall mainly supplement rather than dispute his paper.

As Stern observes, the choice among alternative definitions and classifications depends upon the purposes at hand. For analytical work it may be useful to bear in mind an additional distinction between commodities and services that is not mentioned by Stern. It is the tendency for commodity-producing industries to transform physical inputs into physical things of further value in contrast to the tendency of service industries to use relatively few physical inputs. In the United States in 1972, as noted in Kravis, Heston, and Summers (1983), for example, commodity inputs accounted for 44 per cent of the value of output in commodity-producing industries and only 9 per cent in the service industries. This does not in itself say anything about the labour or capital intensity of the two kinds of industries since the value that is added in any industry, whether it is a large proportion or a small proportion of the value of final output, may be achieved either by the use of a lot of capital or by the use of a lot of labour. However, as a means of understanding the distinction between service and commodity industries, this criterion may be informative.

With respect to the global dimensions of trade and services and the position of various countries in this trade, I offer two tables that will supplement the materials presented by Stern. Table 1 shows the exports of merchandise and services for the world as a whole, for selected countries and groups of countries. The data are drawn from the International Monetary Fund (IMF) *Balance of Payments Statistics Yearbook* (1983). The aim has been to include all current, commercially-inspired trade in commodities and services with the most detailed breakdown provided by this source. This objective of excluding noncommercial transactions has not been completely satisfied, partly because military and other government transactions are included in the merchandise trade figures. The services considered in this table exclude both the income derived from foreign investment and the IMF category 'other official goods, services and income', which represents mainly expenditures on diplomatic and military personnel and installations. After these two deletions, four IMF service categories remain – shipment (freight), other transportation (mainly passenger fares), travel (tourism), and 'other private goods, services and income'.

This is the most detailed breakdown of international service transactions compiled by any international agency. It is in marked contrast to the degree of breakdown that is available for merchandise trade in the publications of the United Nations Statistical Office. It includes in one heterogeneous category – 'other private goods, services and income' – many of the services that are the focus of the current US policy initiative for the freeing of trade in services such as insurance, communications, and financial services. However, it also includes the labour and property income of nonresidents. Thus this broad heterogeneous IMF category, which accounted for about 40 per cent of service trade as I have defined it, clearly warrants efforts at disaggregation by the data-producing and data-collating authorities in accordance with Stern's call for better data.

The services as defined in Table 1 – that is excluding income from investment – comprised about 18 per cent of world exports of merchandise and services in 1982. However, reported world imports of these services were about 10 per cent larger than reported world exports. Most of this difference was because payments for services by ships flying flags of convenience are usually recorded by the countries using such services, whereas the corresponding credits tend not to be

TABLE 1

Exports of merchandise and services, selected areas, 1982 (billion SDRs)

	World	Industrial countries	EEC (6)	US	Canada	Japan	Developing countries	
							Oil exporters	Other
Merchandise	1,528.1	1,023.6	401.0	191.1	63.8	124.7	192.0	295.7
Services	339.2	244.4	120.1	34.7	6.5	18.6	11.4	83.3
Shipment	47.1	36.3	12.4	3.8	0.6	6.8	3.6	7.1
Other transport	67.4	51.2	33.6	10.1	0.5	5.3	1.4	14.8
Travel	88.1	59.9	21.7	10.2	2.7	0.7	3.6	24.6
Other private goods, services and income	136.6	97.0	52.4	10.6	2.7	5.8	2.8	36.8
Total	1,867.3	1,268.0	521.1	225.8	70.3	143.3	203.4	379.0

SOURCE: International Monetary Fund (1983) *Balance of Payments Statistics*. Vol. 34, *Yearbook Part 2*.

entered in any country's balance of payments (IMF, 1983). Even with this correction, however, world trade in services would constitute less than a fifth of world trade in merchandise and services. The view is sometimes expressed that trade in services is under-reported relative to trade in commodities, but it seems unlikely that the merchandise/service proportions in world trade can be very far from 5 to 1 or 4 to 1.

The exports in Table 1 are used to derive indicators of the relative export structure or revealed comparative advantage, to use Balassa's term, that are presented in Table 2. The entries in Table 2 are obtained by dividing the percentage share of each area or each country in world exports of the particular category (such as 'shipment') by that area's or country's percentage in world exports of all merchandise and services (as noted in the last row of the table). Net exports rather than gross exports might have been used to get at the comparative advantage of each country, but the import figures necessary for this purpose might be distorted to different degrees and in different ways by countries' protectionist practices, which loom large in some service categories and in some countries.

The results in Table 2 show that while the industrial countries as a whole have a revealed comparative advantage in services, the same is not true of the US, Canada and Japan. However, Japan is strong in shipment and the US in other transport. Developing countries, other than oil exporters, tend to have export structures in which services loom relatively large. Were it possible to allocate the receipts of ships flying flags of convenience, the non-oil exporters among the developing countries might show a stronger performance in shipment.

However, it is a long jump from such figures on relative export performance to any conclusion about how trade patterns would look if restrictions were substantially reduced. In particular it is not at all clear whether the United States would emerge with larger increases in its credits or with larger increases in its debits on service trade. The focus of US hopes for increased exports relates to the service industries included in the IMF category 'other private goods, services and income'. The European Economic Community's (EEC's) relative exports are large in this area, which may be due either to an underlying comparative advantage or to fewer intra-EEC restrictions on service trade or some combination of the two. Relative US export performance has not been above average, but the United States may

TABLE 2

Relative export performance in merchandise and services, selected areas, 1982

	Industrial countries	EEC (6)	US	Canada	Japan	Developing countries	
						Oil exporters	Other
Merchandise	99	94	103	111	106	117	96
Services	106	127	84	50	71	31	121
Shipments	114	94	67	34	187	70	74
Other transport	112	179	124	18	69	19	108
Travel	100	88	96	82	10	38	137
Other private goods, services and income	105	138	99	82	86	30	21

SOURCE: See Table 1. The percentage distributions of rows 1 to 6 in Table 1 have been divided by the percentage distribution of the last row.

have a comparative advantage in those sectors in this broad category for which the removal of restrictions would bring about the greatest trade expansion. On the other hand, a general freeing of restrictions on trade in services might substantially increase the US debits; this might ensue if, for example, the coastwide trade of the United States were opened to foreign competition. Of course, account must be taken of the fact that the US initiative is directed not only to international transactions in services, but also to direct investment in service-producing industries. The sales of services by US-owned affiliates abroad are quantitatively more important than service trade.

Stern is a little pessimistic about the benefits that might ensue if existing restrictions on trade and investment in service industries were diminished. He suggests that greater gains might be realized by focusing on easing restrictions affecting goods. In assessing these possibilities account must be taken of greater opportunities for the removal of restrictions on service trade that may exist because services were omitted from the General Agreement on Tariffs and Trade (GATT) and thus have not been the focus of repeated searches and negotiations for the reduction of restrictions. In addition, services contain some sectors representing growth points and thus provide the opportunity for relatively painless increases in imports. However, this criterion suggests that growth should be taken as the guide for the selection of liberalization targets for commodities as well as services. That is, if a growth criterion is to be used there would appear to be no logical reason to restrict it to services.

The assessment of prospects for success of the US service-oriented initiative depends also on what the US policy is trying to optimize. To the extent that the removal of specific obstacles to the expansion of the exports or direct investments of particular US firms or industries in specific foreign markets is the main aim, some successes are likely to be achieved. If on the other hand, the general diminution in restrictions on service imports and direct investment is the objective, success is much more dubious. Even if, as is likely, the real target is the former, it is not clear if it is better for the US negotiators to try to accomplish this by getting agreement on a general rule to which there will be many exceptions, sought not the least by the United States, or if it would be more productive for them to chip away at specific obstacles through reciprocal concessions.

REFERENCE

Kravis, Irving B., Alan W. Heston, and Robert Summers (1983) 'The share of services in economic growth'. In F.G. Adams and B. Hichman, eds., *Global Econometrics: Essays in Honor of Lawrence Klein* (Cambridge: MIT Press).

Comments

Ronald J. Wonnacott

University of Western Ontario

Despite the growing importance of services in economic activity, the economics profession has come late to an analysis of trade in services. If you look at the typical bibliography on the subject, chances are that if an article has services in its title, the second last digit in its date will be 8. Much of the research activity by economists on trade in services seems to have been stimulated by the initiative of the US government in putting this high on its negotiating agenda.

Perhaps one of the reasons for the lack of research in services is that, because it's difficult to visualize invisibles, and intangibles can't be touched, it's hard to get excited about them; they don't cross the border in a package. A second problem is that service trade is poorly documented. The data tend to be buried in balance-of-payments categories that are difficult to disentangle. Third, as in the early stages of research into anything, there is a difference of opinion on how the subject should be defined. In short, we're not always sure what a service is, and even when we are, we have trouble finding it. In this respect, we're indebted to Robert Stern for setting out alternative definitions, and for identifying and putting into perspective the various categories of services. In the information he sets out there is at least one surprise: the United States is not dominant in the world export of services – an important fact that, as he points out, allows us to reject the criticism that the recent US initiative is simply the self-serving action of a dominant supplier.

While services represent over two-thirds of US gross domestic product, they represent a far smaller percentage of US trade – and the same is true for other countries as well. (Singapore is so spectacular

an exception that it is worth special note. Whereas service exports account for 1 to 2 per cent of US production, 2 to 3 per cent of Canadian, and just over 6 per cent of UK production, for Singapore the figure is 65 per cent.)

There are two possible explanations for services being less important in trade than in domestic activity. First, many services may be 'inherently domestic'; for example, it doesn't matter what your trade policy may be, haircuts won't be traded. If this is broadly true of most services, then there is little gain to be achieved from trade liberalization, and we would have a justification for the profession's past lack of emphasis on this subject. The alternative explanation for limited service trade is that it is severely restricted. If this is the dominant explanation, then there may be major sources of gain from liberalizing trade – a point that Robert Stern makes in a somewhat different context. Thus an important first element on the research agenda is not just to identify barriers to service trade, but also to estimate how much they are restricting trade.

Stern and other authors discuss the applicability of the theory of comparative advantage. It seems to me that we should also be trying to find out the importance of economies of scale. I'm not sure if scale effects in services are important or not; but if they are, they may dominate the collective gains from trade as they sometimes do in trade in goods. (As always, there will be the challenging additional question of how such collective gains may be distributed.)

One suspects that there may be economies of scale in the provision of many services because, within the United States, insurance companies and banks involved in certain types of activities tend to be very large. This suggests that, whether or not there may be further scale gains facing US firms, there may well be scale gains from increased market size for service producers in smaller countries.

Finally, a third source of potential gain from trade liberalization is the possible reduction in technical inefficiency – sheer waste. An example of such waste might be the duplication of data sets or data processing in two countries because one or both protect these activities. Another way of viewing this problem is to note that, in this case, the excess costs of protection may not be just a relatively small percentage of the total cost of the product, as is the case with many goods. Instead it may be 100 per cent of the total cost. For example, protection may mean that 10 per cent of the cost of a refrigerator built

in Canada may be excess cost; however, there's still a lot of value in that refrigerator. On the other hand, suppose Canadian institutions are required to establish data sets which duplicate those of the United States and have little or no inherent value of their own. From the point of view of collective welfare, the excess cost in this case could be 100 per cent, or close to it.

If we return to the question of comparative advantage, it seems to me that, while there is obvious value in establishing the degree to which the comparative advantage model holds, and the consequent collective gains that may be realized from trade liberalization, it's a much more difficult task to use the comparative advantage model to predict which countries will specialize in what products if trade is liberalized. We have great difficulty in making such predictions for goods. I recall the question put some years ago: 'If we really do get completely liberalized trade between the United States and the rest of the world, what does comparative advantage tell us that the United States will produce?' The only answers that could be made with any confidence were wheat and Boeing 747s, and we weren't quite so sure about 747s. It seems to me that the reasons for the difficulty of prediction are that first, factor endowments no longer provide as much leverage for predicting in a world in which some factors – in particular, capital – have a high degree of international mobility; and second, economies of scale mean that whoever happens to start off being big and gets a jump on volume, may be difficult to dislodge by producers in other countries who may have an edge – but not a substantial one – in terms of comparative advantage.

If we haven't been able to use the traditional comparative-advantage, factor-endowment model to make very strong predictions for goods, it seems to me unlikely that we'll be able to use it effectively to predict service trade. Therefore, if one were forced to predict what would happen if trade in services were to be liberalized, one might guess that the countries that have been exporting a lot would continue to do so, more because of their present volume advantage and existing expertise than any difference in traditional factor endowments.

Therefore, if we look to a research agenda, it seems to me that we should not be concentrating on 'Who will do what?' so much as establishing that liberalized service trade will yield collective gains, and that the distribution of these gains is likely to be Pareto-improving, in the broad sense that no *country* will be left worse off.

(There's no escaping the fact that, within each country, there will be losers as well as winners.) Moreover, I agree with Robert Stern that another useful research approach may be a sector by sector benefit-cost analysis of how consumers, producers, and other interests are affected as service trade is liberalized – an analysis of the type that, for example, Glen Jenkins has done for Canadian textiles.

A further important point to recognize is that the question of liberalizing trade in services is very close to the question of liberalizing the treatment of foreign investment. One reason is the difficulty, in many cases, of controlling the trans-border transport or transmission of services. For example, management expertise can be transferred across the border by phone, or information can be transmitted from computer to computer. In such cases, there is no 'parcel' crossing the border that can be subject to a restraint on trade. In a world in which the control of imports is therefore difficult, one method is to control the right of establishment of foreign firms within the domestic economy. From the point of view of the United States, it seems to me that getting other countries to liberalize their trade in services may be a way of getting them to liberalize their treatment of US investment – in banking, insurance, and so on. It's not clear if this was one of the US objectives in promoting the liberalization of service trade, or if this is just a side effect that was not fully understood at the time. Of course, this observation about foreign investment does not imply that other countries should oppose liberalizing trade in services, since liberalizing the treatment of US investment may benefit them as well.

As we look at service trade, it seems likely that we will encounter many of the old problems we've been examining for years on goods trade. For example, depending on the specific case at hand, countervail and other forms of 'contingency protection' on goods trade can be protectionist devices or liberalizing influences. (As an example of the latter, countervail that is threatened but not actually applied may prevent trade-distorting policies by partners.) Each case must be judged on its own merit. This is also true in service trade.

Finally, on the sixty-four dollar question: before more research is done and we know more about this subject, should our presumption be that liberalized trade in services would be beneficial and should be pursued? On this question, I agree with Rachael McCulloch. It seems to me reasonable a priori to view liberalized trade in services (like

goods) as likely to be beneficial; exceptions should be made only when a convincing case can be made that protection is superior. As in the case of goods, the burden of proof in service trade should be on those who would restrict it. But there's another question above and beyond this – a question of priorities. How much of our negotiating effort should we now divert from negotiating down non-tariff barriers on trade in goods to promoting liberalized service trade? One might hope that one effort might complement the other. But if this is not the case, it's not clear to me how much of our effort should be diverted away from liberalizing trade in goods.

Negotiating about trade and investment in services

Rodney de C. Grey

Institute for Research on Public Policy, Ottawa

It was proposed by the organizers of the workshop that this paper should 'seek to clarify the major barriers to trade and investment in services by type, sector, and country, review the status and treatment of service issues in the major industrialized countries and in the General Agreement on Tariffs and Trade (GATT), Organization for Economic Co-operation and Development (OECD) and UNCTAD, and offer a framework for bilateral and multilateral negotiations concerning services'. Anyone who has, even casually, considered any of this range of issues will realize that such an assignment is ludicrously ambitious. Moreover, it is, in part, quite unnecessary, because the US GATT Study on services sets out the factual background, at least from a US viewpoint, well enough, and there are other national studies now available.¹ Nor do I propose to offer 'a framework for negotiations'. Rather, I would like to set out a series of propositions about the proposal of the US government that there be negotiations under aegis of the GATT to develop some general rules about trade and investment in services. This series of propositions is designed to raise some questions and to express some concerns.

We should begin by defining the 'services proposal'. There are various versions. As I read the various statements, the proposal is that the major advanced market economies and at least the key developing countries should negotiate some set of comprehensive international rules covering trade in services, whether delivered directly (as in data services) or by establishments. This proposal reflects the growing realization that there are significant and costly restrictions on such trade and that services exporters and services

corporations could improve their prospects by removing some of these restrictions. However, the services proposal, at least as expressed by representatives of major services corporations, involves the assertion that such restrictions could most effectively be removed, or brought within some framework of rules – involving rights and obligations, dispute-settlement procedures and sanctions for noncompliance – by the negotiation of rules of an across-the-board character, rather than by negotiating sector by sector.

The first consideration that comes to my mind is that such a proposal must have very little appeal to developing countries – nor, indeed, to most smaller countries. Many of them will prefer, as an important issue of policy, to develop some of the services industries with the maximum freedom from obligations, and they may wish to control access to their national markets for particular services by foreign firms or for foreign-produced services. They are likely therefore to resent being pressed by the powerful services-oriented economies of the United States and the United Kingdom to take part in a comprehensive negotiation designed to evolve general rules. They may find it difficult to establish just what are the implications of particular proposed general rules for their plans to develop domestic capabilities in particular services sectors. They will not wish to enter into a negotiation in which their existing rights of access to the markets of the industrialized economies for their manufactured exports or potential exports of goods are at risk if they do not concede guarantees of access to their domestic markets for US- and UK-services companies. As they will see it, the fully industrialized and advanced services economies of the North are trying to rework the GATT bargain, so as to secure new scope for restricting imports of goods, or to secure new rights in the markets of the South. This does not mean that they do not understand the logic of the US position, and of the political calculations involved, but rather that they understand it very well, and do not believe their interests will be advanced by falling in with the US proposals.

It is important, it seems to me, that US interest groups make an effort to appreciate how the 'services proposal' will look to others. However, the fact that developing countries, understandably, I think, will wish to stand aside, should not stop us from addressing the issue in a fairly systematic and methodical way. As the various services industries develop, there will obviously be problems of access, in

regard to traded services, and problems regarding the establishment and treatment of foreign-controlled corporations in the services sector. It is interesting, in this context, that at least three of the recent issues between Canada and the United States have arisen in regard to services. There was the 'border broadcasting' issue, a nagging and totally unnecessary dispute which is more about advertising than 'informatics'. Another was the set of issues thought to be raised by Canadian trucking firms operating in the United States; this was more about the gap between two regulatory regimes than about trucking. A third is the provision in the Canadian Bank Act, imposing a requirement on foreign-controlled banks (and on Canadian banks too, for that matter) that they maintain certain minimum records in Canada rather than rely solely on data-storage facilities outside Canada. This provision seems to have irritated a lot of Americans, although, to banks with decentralized, distributed data bases, it imposes no great burden. American commentators appear to assume that, because the enactment of the provisions was welcomed by protectionists in the Canadian computer services industry, it concerned only the protectionists' interest, and little to do with the more legitimate consideration of bank regulation. Perhaps some of the recent problems of some US banks will make Americans more comprehending of other countries' approaches to regulations of financial institutions. It is important that these three examples all relate to regulated industries. Many services industries are regulated industries; of course, regulation can easily be an excuse or a screen for protection against foreign competition. US enthusiasm for deregulation does not take much account for the fact that other countries acquired much of their enthusiasm, and much of their techniques for regulation, from US models and from US exposition. It may take some time, perhaps forever, for the case for deregulation to be learned in other countries.

My first proposition in trying to come to grips with the services proposal is that trade and investment in services should not be thought of as taking place in a kind of vacuum in an absence of *rules*. There are some partial and incomplete regimes providing some rules for some sectors; there are already in place important bilateral and multilateral understandings, the results of detailed and prolonged negotiations, covering at least some aspects of particular services activities, for example, air transport, telecommunications, and

banking. Given the existence of these relatively elaborate and long-established arrangements, the advocates for the holding of some sort of general multilateral and multisectoral negotiation must accept the onus of showing why what they say they want cannot be secured in major part by the revision of existing sectoral agreements. Moreover, there are instrumentalities such as the ITU, IATA, ICAO, and so forth, and the whole body of national legislation relating to the various services sectors. National legislation, in all major countries, has been developed in the knowledge that the activities which the legislation seeks to control must be carried out in economies that are open to outside influences and not hermetically sealed. Economic agents engaged in services activities surely do so in light of knowledge of the legislation in their own country and in other countries; there are bodies of national legislation that apply and provide a set of rules. There is, too, the body of acceptable commercial practice and private international law which bears on services activities as on other international transactions. Further, there are the many provisions of existing bilateral treaties which bear on services activities.² We must not address the emerging issues as though there is a functionally effective, logically coherent set of multisectoral rules of general application in regard to goods (which there is not) and in regard to services as if there are no rules bearing on international transactions.

My second proposition is one of very general application, regarding the conduct of foreign relations in all areas, although it is perhaps only an observation on method or approach, rather than a proposition. As I see it, there is practical utility in realizing that a nation's negotiating skills, that is, its negotiating credit, is limited at any given time; it follows from this glimpse of the obvious that, in regard to any proposal to launch negotiations, one should ask whether the stated objective can be achieved more economically than by the approach suggested, in the sense of not using so much of the limited stock of negotiating credit. As Ambassador Robert Straus so often said to the rest of us in Geneva: 'I have only so many chips.' It follows that we should try to get clear just how particular groups in the community think their interests will be served by a proposal to enter into negotiations, try to formulate these interests clearly, and then consider how they can be pursued most economically. Of course, we must first agree that the interest of the particular groups concerned is also the national interest. In the present case, we should ask: what do

services corporations in the United States (and in the United Kingdom) really seek to secure when they ask their governments to launch a comprehensive negotiation about services? Is what they seek to secure in the interests of the United States (and the United Kingdom) as national entities? The answer to the latter question from US corporations and apparently from US academics is 'yes'. If so, how can the objective be achieved with the least expenditure of national bargaining power?

Put more precisely, what is it that US financial services companies, US insurance companies, or US air transport companies, think they want? Should the United States be making a major diplomatic effort to serve their interests – rather than, for example, addressing the question of how to sort out the mess in the trade in textiles and textile products, in steel, in autos, and in agricultural trade (although some effort is going into that area), and in trying to improve the trade prospects of the Third World? There is no convincing evidence that the US negotiators have the diplomatic skills or credits to address all these issues effectively at one time; their assertion that attention to services issues will not draw effort away from other issues is just that – an assertion, but not a convincing one.

My third proposition is that the GATT, as a system, should not be regarded as an analogue for a set of general rules on services. One important reason is that the GATT is manifestly not working; the GATT, as a system, regardless of the intellectual rigour and skilful drafting of the specific provisions, is in considerable disarray; it is not working effectively for traded goods. Surely, it is not necessary to argue this point in detail.³ If the GATT is not working, is it wise to assume that it could be the basis or the model for a system of general rules for traded services?

We shall consider below in more detail the extent to which some key GATT provisions are being ignored, flouted, or rendered ineffective. But looking at the GATT as a system, or as the centrepiece of a system, it is important to realize that some of its central provisions evolved as detailed rules to limit and bring under control the use of restrictive mechanisms that were already established in domestic legislation (and, often, the subject of provisions in older bilateral agreements). I have in mind Articles VI (anti-dumping and countervail), XII (balance-of-payments restrictions), and XIX (emergency action to limit imports). If we were to adopt these rules for

traded services, such new rules would sanction restrictive action of types not now common in regard to traded services. Do we really want anti-dumping duties for traded services, countervailing duties on allegedly subsidized exports or services,⁴ systematic restriction on transactions in the services sector justified by balance-of-payments considerations, and 'escape clause' action in services to protect particular domestic producers against imports thought to be causing or threatening injury? One can make a tidy abstract case for saying yes; the trade bar and the Commerce and ITC bureaucracy, all of whom are interested parties, might think that that case was interesting, but it would not be considered by anyone with real knowledge of trade regulation. As a practical matter, this would be a retrograde development. Of course, that it is so does not mean that it is not part of the agenda of a services negotiation, even though, as usual in trade negotiations, the real agenda is rather obscure.

I would like to return to my proposition that the GATT is now not an effective set of rules for goods, and therefore that it should not be assumed to be a suitable analogue for a set of rules for traded services. This is really my key proposition. That being so, we should look at the GATT system more closely.

The key concept of the GATT is not free trade, but rather the reduction of barriers to trade and *nondiscrimination*, as the preamble makes clear enough.⁵ The concept of nondiscrimination is addressed in Article I, which is a most-favoured-nation clause cast in the *unconditional* form.⁶ Such a clause requires that concessions negotiated with one signatory must be extended *unconditionally* – that is, without other specific payment – to all other partners with such treaty rights. One could argue that the central issue in trade policy, as it has evolved in relation to trade in goods and shipping, was not free trade versus protection, but rather the conflict between the concept of bilateral reciprocity (and the closely related concept of conditional most-favoured-nation treatment) and the concept of nondiscrimination, given expression in the most-favoured-nation clause in the unconditional form. Bilateral reciprocity was argued about exhaustively some decades ago in relation to traded goods.⁷ By the mid 1920s it became abundantly clear that whatever could be said for the notion of reciprocity cast in broad, general terms, that is, as invoked by Cordell Hull in his reciprocal trade agreements program, precise or 'mirror' reciprocity in product terms, in relation to traded

goods, is unworkable. However, the concept of reciprocity, when applied to certain services, particularly those services provided by extensively regulated industries, and those services industries involving the delivery of services by establishments, may prove workable and useful. The model for services agreements may not be Article I of the GATT, but the conditional m.f.n. approach (or reciprocity criterion) followed by the United States in regard to the Tokyo Round Subsidies/Countervailing Duties Code and the Tokyo Round Procurement Code. The reciprocity criterion is designed, firstly, to deal with the 'free rider' problem, and secondly, it is a not inequitable way to approach establishment considerations. One country may, of course, accept foreign-controlled establishments in various sectors regardless of reciprocity, primarily as a matter of domestic policy. However, it is quite another matter to accept a general obligation requiring that country to ignore reciprocity considerations; for that reason a bilateral format for negotiation may be preferable.

A second principle or concept of the GATT was that there were to be no new preferences. It was agreed that such margins of tariff preferences as remained after the first Geneva negotiations need not be abolished, although that was the US objective; the conclusion reached was that the absolute margins could be maintained, but could not be increased. Moreover it was assumed that all countries giving tariff preference would be prepared to negotiate for reductions in preferences. Is it necessary to do more than merely state that these provisions are widely ignored? Preferences and discrimination, in one form or another, are what modern trade policy is largely about. It is therefore very likely that, if we develop general rules on traded services on the GATT model, there would develop preferential arrangements for services in and around the European Economic Community and for developing countries. This would not be in the interest of the United States (or of Canada; like many existing preferences on goods, they will be preferences against North America. Of course, to the extent that the European Common Market becomes a real common market, that is, that it becomes a common market for services, there will inevitably be European preferences against North American and Japanese services competing in Europe.

This suggests that it would be perhaps more advantageous to try to improve the OECD code on capital movements and the OECD code on

invisibles – to build in sanctions and provide some sort of dispute-settlement procedures in these codes, and bring into the Paris discussions some key developing countries – than to look to Geneva for the model set of rules.⁸

Another key concept of the GATT, one of obvious relevance for services, is national treatment. This concept, long established in the prewar system of treaties, is also addressed by the OECD. There, it is national treatment for establishments. The GATT concept deals, like the rest of the GATT, with the treatment of goods; it provides that, once the border barrier has been surmounted (the conditions of an import quota fulfilled, or the frontier tax or customs tariff paid), the goods entering the national market are to be treated on the same basis as comparable domestic product. This is important with respect to commodity taxes, for example. (In Canada, our provincial authorities have been tempted, from time to time, to fiddle with sales taxes, in order to improve the competitive position of local producers. The invoking of Article III, which sets out rights to which US producers attach importance, has been sufficient to bring these authorities back on the straight and narrow.)

The one important exception to Article III is government procurement. This exception, like the rest of the Article, is carefully drafted; it excepts from the national treatment obligation only the purchase of goods for use by the government concerned. Thus it does not exempt from national treatment the purchase of goods for resale (that, in theory, should be covered in the obligations regarding state-trading entities, Article XVII). Nor does it cover the purchase of capital equipment for the production of goods for resale. On this basis it would appear that the domestic product preferences practised by many state-owned utilities are probably in breach of the GATT.

It is a nice question, therefore, whether in the renegotiation or reworking of the GATT procurement code now starting in Geneva (draft request lists have been exchanged) it would be better to try to make the code really effective over a significant range of transactions in goods (by revising the list of entities) or whether effort should be diverted in trying to cover services contracts. I would guess that there will be some real difficulties in the latter course. For example, in Canada, under the previous administration, an attempt was being made to divert government-controlled (or influenced) contracts for consulting engineering services from the Canadian subsidiary of a

foreign corporation to Canadian-controlled firms. If that has been the thrust of policy, then it seems a long step to the notion that a foreign firm, operating and established outside Canada, should be allowed to compete in Canada for government contracts on the same basis as Canadian firms. (One should note that, in regard to this sector, there is a preference for a domestic product functions like an import tariff; if there were tariffs on the imports of services, there could be national treatment on the Article III model, even for procurement.)

It should be evident from these comments that, in regard to its key concepts, the GATT is no longer effective, if it ever was. That means that the GATT no longer serves, and no longer is seen to serve, adequately, the interests of small countries, such as Canada, nor of the developing countries. My key proposition is, therefore, that if we have a system which, by and large, is not working – or, to the extent that it is working, works primarily to protect or advance the interests of the larger entities – then we might at least be cautious about trying to extend it to cover transactions in other sectors. I doubt that the interests of Canada, and even of the United States would be served by trying to extend the GATT to another area of trade.

As I see it, the principal task of trade-policy makers in the near and medium-term must be to consider what sort of trade-relations system can be reconstructed, and to put in place a functionally more effective set of rules regarding traded goods. Only then should we worry about the scope for some such system of general rules in regard to traded services. This perspective does not mean that there are not some elements or concepts of the GATT, and perhaps some notions, or at least phrases, derived from prewar bilateral treaties, notably 'national treatment', that could have application in regard to certain traded services, and in regard to aspects of establishment. This will be the case if these elements or concepts are carefully delimited *as to what measures or devices the obligation is to apply*.

However, there is a real difficulty with building a consensus on services around the concept of national treatment. The difficulty is that the US approach is contradictory and inconsistent, and therefore unconvincing. On the one hand, in the OECD (and in bilateral arrangements) the United States argues that the foreign subsidiaries of US corporations are to be treated on the same basis as domestically controlled corporations; however, when it comes to anti-trust, to securities regulation, to banking, to balance-of-payments

considerations, to strategic controls on exports involving high technology, the United States treats the subsidiaries of US-controlled firms in other jurisdictions as though they are subject in some measure to US jurisdiction, and are, in some measure, legitimate conduits for US policy. One should not be too high-minded or naive about this; there is some extra-territoriality involved in the jurisdiction asserted by many countries. And of course, a vigorous assertion of sovereignty and a vigorous rejection of US assertions of jurisdiction may sometimes be a cover for protectionism and cartelism. But the United States surely has to sort out just what it really wants for US-controlled corporations established in other countries; at present, US assertions of extraterritorial jurisdiction have driven some sort of large conveyance right through the case for 'national treatment'. That is, if you like, another 'proposition'.

The detailed elaboration on a sector basis of 'natural treatment' provisions, applying to some traded services along the lines of Article III of the GATT (that is, recognizing the legitimacy of a bound charge or restriction at the frontier), applying to establishment roughly on the OECD model, applying as between OECD member countries, and not thrust on developing countries, may possibly be a useful way to come to grips with restrictions on traded services and the delivery of services by establishments. Concepts of reciprocity, articulated bilaterally, and/or conditional most-favoured-nation treatment, could be integrated into such an approach.

If we do rush into a services negotiation, on the basis of the analysis contained in the various national studies, such negotiation might never reach any useful conclusion, or, if it did, it might be achieved only through the United States and EEC, which have interests as services exporters, imposing their agreed will on others. That was what became necessary in the Tokyo Round – as Ambassador Strauss realized – if that project was ever to be concluded. Such a process is bound to yield very unsatisfactory results for many other countries, such as Canada. As a technique of conducting relations between states, it is a threat to the development of any rational international order.

It is useful to note that, when *general* rules were being negotiated, as on subsidies and countervail, the Tokyo Round produced, not only an inadequate result, but a perverse and damaging result. By contrast, it was when sector arrangements were being negotiated, as

in the aircraft sector, that the most useful results in the Tokyo Round were achieved. Multisector negotiations can provide opportunities for striking imaginative bargains, if the will is there, if the mutual interest exists, and if an adequate intellectual basis has been established. Multilateral negotiations addressed to general rules can also provide great scope for blocking tactics, if the will and interest is there, and great scope for working to a hidden agenda.

Another proposition I find compelling is that, while it may well be that there are costly restrictions on services, there are other restrictions on trade, and other trade policy issues that are perhaps of even greater importance, even to the United States. The focus on traded services, important as this may be to the US service companies, is diverting attention from those other difficult trade issues that threaten to destroy what little is left of the postwar trade relations system. None of the literature on services makes an effective case for giving an overwhelming priority to the services proposal; the priority being accorded in Washington is simply a reflection of the lobbying skill of particular interests and individuals. The priorities for governments must surely be international monetary management, the achievement of more stable growth in the OECD area, and the bringing of some sort of order and some systems of rules to those sectors of traded goods where there is not autarchy and anarchy – for example, to the trade in steel, textiles, garments, agriculture, and automobiles – and to doing something about the access to industrial markets of the manufactured exports of developing countries, not so much for the improvements in trade balances as to encourage investment in manufacturing for export.

To address this last issue, in reality, involves some fundamental rethinking of many aspects of import policy. The whole system of 'unfair' trade legislation, in part sanctioned by Article VI of the GATT and the two article's codes, and the safeguards provided in domestic legislation (for example the US 'escape clause'), in part sanctioned by Article XIX of the GATT, requires radical reform. This is needed because over the period from say, before the Kennedy Round up to the present, we have been elaborating, in domestic legislation, a form of scrutiny and control over import competition involving much different and more restrictive concepts than we have over comparable domestic competition. To put the issue more concretely: why should the conditions and criteria governing the imposition of an anti-dumping

action (a sanction against price discrimination) be more rigorous than the conditions and criteria for imposition of a sanction under the Robinson-Patman Act (in the United States)? To the extent that these conditions and criteria are more rigorous, the system is protectionist. In my view, this is one of the major issues in trade policy, and it should be addressed systematically, before a consideration of the extension of 'unfair' trade concepts to the services area.⁹

Having said all that, I would agree that in the longer term it may be possible to devise some complex of rules that could improve, at least marginally, on the international order covering trade and investment in services. It would therefore be useful to have a multilateral examination such as a systematic study, of the broad range of commercial policy arrangements – the GATT, the OECD (particularly the codes on invisibles and on capital movements), UNCTAD (shipping and restrictive practices), FCN treaties, arrangements regarding particular services sectors, such as the Chicago convention establishing ICAO and its subordinate arrangements – to see if some mix of model provisions can be devised that might be useful for particular sectors or in particular contexts. As I have already stated, I think of a detailed national treatment provision as useful in such an effort. But it does not seem clear that the GATT, given its history and its demonstrated lack of effectiveness, is where we should start. It might be that the result of such an examination would be the conclusion that particular treaty provisions or commercial policy concepts could be most effectively used in bilateral arrangements, rather than being deployed in what might become, at a multilateral level, no more than vague codes of conduct on the UNCTAD model – arrangements without binding force, and not carrying the promise of an exchange of rights and obligations on a contractual basis. Whether such a modest but realistic and workmanlike approach would be acceptable to US services companies is not clear.

The United States appears to be approaching the services issues in an unduly adversarial fashion. US representatives give the impression that they are quite determined to open the markets of other countries to US services companies, and that, to this end, a great deal of negotiating leverage will be used (for example, the GSP). The logic of taking this issue into the GATT is to develop a system in which withdrawal of access for goods can be used in retaliation for restrictions on services transactions. That is one reason why a

number of small countries are reluctant to address this issue in the GATT.

Moreover, it seems not to be clearly understood in the United States that many other countries have objectives – such as development and sovereignty – that are as important to them as the gains from trade are to the United States.

NOTES

- 1 For some interesting views on the development of the services sector, see Gershuny, Jonathan and Ian Miles (1983); Nusbaumer, Jacques (1984) and the most useful commentary on the framework of trade in services: Ronald Kent Shelp (1981). Shelp's modest proposals for negotiation are set out in his chapter 7 'The Framework for Liberalization'.
- 2 See, for example, Treaty of Commerce, Establishment and Navigation (between US and Japan), 1962. (H.M.S.O., md, 1874); many of the articles of the treaty, which deals, inter alia, with the rights of nationals and companies, apply to those engaged in services.
- 3 The present writer addressed this issue in a conference held in 1984 at Monash University; it is expected that the proceedings of that conference will be published shortly. See also Harold Malmgren(1983).
- 4 See the proposals in Michael Cohen and Thomas Morante (1981, 495-519).
- 5 See Contracting Parties to the General Agreement on Tariffs and Trade, March 1969; the preambular declaration is at page 1.
- 6 The two forms of the most-favoured-nation clause, conditional and unconditional, are discussed in Year Book of the International Law Commission, 1969, 1970, 1978.
- 7 A useful reference, in regard to reciprocity in US commercial policy, is John H. Dobson 1976; Appendix C, at page 139, lists important bibliographic sources on reciprocity and on other concepts.
- 8 Organization for Economic Co-operation and Development: (OECD) *Code of Liberalization of Capital Movements; Code of Liberalization of Current Invisible Operations*.
- 9 For comments by trade policy writers on the point, see Rodney de C. Grey 1978, page 36, and the references therein to earlier observations of Metzger and Ehrenhaft; see also Richard Dale particularly Chapter 3, 'Price Discrimination and the Law'; see also Organization for Economic Co-operation and Development (OECD) 11 April 1984 (not yet published).

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Comments

Robert E. Baldwin

University of Wisconsin

It is always a pleasure as well as highly instructive to read a paper by Rod Grey or listen to him present one. With wit and much wisdom, Rod always 'tells it like it is'. To my personal knowledge he has been in the trade negotiating business for at least 20 years, and has become the Howard Cosell of trade negotiators.

One point about trade negotiations I learned from Rod Grey is that if you want to understand better the attitude of the developing countries as well as such countries as Canada and Australia towards trade negotiations and the General Agreement on Tariffs and Trade (GATT), you should think about the problems of being small. In many ways a system such as the GATT based on legal obligations involving rights and concessions does not work very well for small countries. When large country-groups like the European Economic Community (EEC), the United States, and Japan agree on some particular solution to a negotiating issue, the matter is pretty much settled. There is not very much that the smaller countries can do about it. The threat of pulling out is not a very credible one, since the large countries can get along very nicely without any one small country or even several of them. Similarly, the threat of retaliation – the action that is supposed to force others into keeping their concession commitments – does not work well for small countries. The large countries have so many alternative outlets for their exports that a concession withdrawal by a small country does not hurt exporters in the large country very much.

Trade officials in large countries tend to forget these points and instead think that small countries are fortunate because they can 'free ride' on the concessions made by the large countries. In other words,

small countries know that large countries usually cannot make a meaningful concession withdrawal to achieve reciprocity with the small country without upsetting the balance of concessions with other large countries. Consequently, they permit the small countries to give less in concessions than they receive rather than try to rework the complex set of balances with other countries. However, I think there is little doubt but that the drawbacks of smallness far outweigh the advantages of being small.

Now let me focus specifically on the paper by Rod Grey – a paper written from the viewpoint of one who has long represented a small country. His key proposition is that the GATT is not now an effective set of rules for goods, and therefore should not be assumed to be a suitable analogue for a set of rules for traded services. He further points out that there are already sets of rules for some services, for example, air transport and telecommunications, and that one must be careful about spending one's negotiating chips on matters that do not involve the most important trading issues of the times. One other conclusion he draws concerning the GATT is that it no longer adequately serves the interests of small countries such as Canada or of the developing countries. He doubts that the interests of the United States will be served by trying to extend the GATT to another area of trade.

We would all agree that the GATT system of rules has not been working well in recent years. The main breakdown, I think, has been in the area of safeguard rules. Many large and small countries are not following the GATT most-favoured-nation rule in restricting imports because of injury to a domestic industry, nor are they providing compensation for concessions that are withdrawn. Instead, they are negotiating so-called 'voluntary' export restraint agreements with exporting countries that they believe are injuring certain of their domestic industries. We should face the fact that the problem is not an institutional one that can be corrected by some ingenious GATT reform. Both large and small countries wishing to protect a domestic industry are unwilling to accept the resultant political pressure from exporting nations who are not sending increased flows of goods to the injured countries if the latter countries raise import barriers on all sources of the product causing the injury. They also are unwilling to compensate others for being injured. Finally, they are unwilling to permit their protection of the injured industries to be subject to the

scrutiny of the GATT dispute-settlement mechanisms. Domestic political considerations are too important for a government to abide by a GATT finding that continued import protection is not warranted.

It seems to me that until both large and small countries solve their domestic political problem of how they can bring about adjustment in injured industries in a manner that meets social welfare standards of modern democratic states and yet does not violate accepted international standards of fairness and nondiscrimination, we shall not see much support for the existing GATT safeguards procedures. Currently, most countries think that the fairest international way of dealing with injury-causing imports is to discriminate against the countries whose exports have increased most rapidly. Some would like to change the GATT to make this an acceptable practice under the GATT rules, provided there was careful monitoring of such situations. However, others fear that in the long term this type of discrimination would be used mainly against small nations and significantly increase political tensions internationally. If one adopts the latter view, one believes the problem must be solved at the domestic level and that the GATT principles should not be changed for short-run appearances of international harmony. What is needed is credible domestic adjustment measures that help workers to adapt to new activities in a socially responsible manner and at the same time do not impose indefinite costs on the rest of the economy. If these are achieved, then I think other countries will be willing to accept temporary protection on a most favoured nation (MFN) basis. The reason they will not do so now is that most nations fear that other countries' protection is an attempt by these countries to make others pay for part of the costs of indefinitely subsidizing an industry whose claim for assistance rests mainly on its political strength rather than on economic grounds.

No matter which viewpoint one holds, it does not seem to me one can conclude that because the GATT system is not working well for traded goods, it necessarily would not work well for traded services. Whether the system would work well in the area of services depends on the contracting parties: do they truly wish to make progress in liberalizing trade in services? Of course, there are some who argue that, even if they do not, we should still have a negotiation. The argument is that such a negotiation would tend to restrain existing protectionist pressures, since leaders who are concerned about the spread of protection can argue that further protection would

jeopardize the success of the entire negotiations. In fact, we know that, short of disaster, negotiators would declare the negotiations a success whether much is accomplished or not. The real success would be the slowing down in the trend towards protection.

Except in the United States, there does not seem to be much enthusiasm for a negotiation in services. Perhaps this is simply because of the lack knowledge in the area. I remember when I was doing a study of non-tariff barriers (NTBs) in 1968, many trade negotiators told me there was little chance of having a meaningful negotiation. They argued that the United States didn't have any NTBs; it was all those other countries. Thus, it would be impossible to get a balance of concessions or an agreed-upon set of rules. The only way we can find out what the actual situation is in this case is to undertake studies such as the United States and certain other countries have done and hold conferences like this one.

From what we know from the work done so far, I think Rod Grey is right to urge that we proceed with caution. I don't know what the latest thinking of the negotiators is, but I would think that something like the following would be the type of format to follow. One would have a general framework or code that would set forth the broad liberalizing objectives and principles to be followed. Then there would be a number of subcodes that would deal with particular groups of services with common problems. For example, there might be subcodes dealing with areas like banking, insurance, shipping, and so on. Each subcode would set forth the objectives being sought with respect to the particular set of barriers or promotions that distort trade and investment in the area.

On the basis of these objectives, each country that wanted to participate in the liberalizing process would set forth the particular set of liberalizing measures it was prepared to undertake in the various subcode areas. Depending on what other countries offered, each country would then decide to which countries it was prepared to extend its liberalizing offers and in what particular subcodes. As was done in the case of the government procurement code, the participants would also bargain with each other by stating how they would be prepared to further liberalize particular codes in order to be granted the benefits of another country's subcode (or sets of subcodes). Similarly, they would inform other countries what they would have to do in the way of liberalization to be granted the benefits of one or all of

their subcodes. Notice that countries would not be restricted to seeking a rough balance within each subcode with other countries but would be restricted within the set of subcodes in which they grant liberalizing privileges to other countries. It also would not be necessary to treat each signatory to a particular subcode in exactly the same way within this subcode.

This procedure, it should be noted, is a form of conditional most-favoured-nation treatment. I agree with Rodney Grey that this is the way to go in the services area, given the unwillingness of many members to liberalize, coupled with the reluctance of those who are prepared to liberalize to give nonsigners a 'free ride'. Fortunately, since the GATT does not cover trade in services, countries would not become involved in the legal difficulties that are faced with the subsidies code when the GATT members are excluded from the benefits of the code on the grounds they did not sign it.

In conclusion, I think an effort to achieve liberalization in traded services and in the investment activities often associated with the delivery of services is worthwhile. But we should realize that only modest progress is possible now. Perhaps only a small number of developed countries will participate in the various subcodes. But a framework would have been created under which future participation by other countries would be possible.

Comments

Geza Feketekuty

Office of the US Trade Representative

Rod Grey in his professional career as a trade negotiator had the reputation of being extremely knowledgeable about the General Agreement on Tariffs and Trade (GATT), as well as stimulating and provocative. He has kept his reputation fully intact. In his paper, Rod makes some very persuasive arguments that are both stimulating and provocative.

Rod lays out and attacks the US position, but I'm not sure that I recognize the position he attributes to the United States. Since I have been responsible for developing that position, I might be able to shed some light on this area. Let me briefly summarize the US position: I will provide a more detailed account in my following paper.

Our basic objective is to bring trade in services into the international trading system, because the distinction between trade in goods and trade in services is becoming increasingly untenable. An increasing number of US high-technology products can be sold only as part of a broader package involving significant service components. Examples are computers that come bundled with software and maintenance services, factory machinery that comes bundled with engineering services, as well as software and maintenance services. Moreover, services account for an increasing proportion of jobs, while many of the traditionally traded goods represent a declining proportion of jobs. Our commercial interest alone therefore dictates increased attention to this sector. There is an even more compelling political reason. With the growing level of important competition in many of the traditional industries, we don't think we can maintain a

majority coalition in support of a liberal trade policy without the increased participation and support of the service industries.

These arguments lead us to propose the establishment of a global framework for trade in services. Agreement on a general framework would be followed by sectoral or item-by-item negotiations designed to achieve specific liberalization objectives. The framework agreement or code would be built on a few basic concepts underlying the GATT, but would *not* involve a wholesale transfer of the GATT articles. The most pertinent considerations are as follows.

1 *Transparency.* All barriers to trade in services would be made explicit and any changes in barriers would be notified.

2 *National treatment.* All domestic laws and regulations that are not notified as trade barriers would have to apply to imported services on the same or equivalent basis as they apply to domestically produced services. Domestic regulations aimed at the achievement of domestic social goals would be permitted, but could not be used to protect a domestic industry through preferential treatment.

3 *Competitive behaviour by monopolies.* Monopolies would be prohibited from abusing their monopoly position when they are in competition with foreign private firms outside the legitimate area of their monopoly. For example, a domestic communications monopoly competing with foreign private firms in international telecommunications or in domestic data-base services, would not be allowed to use its power to control the cost or access to communications to discriminate against foreign competitors, or to use monopoly profits to gain a competitive advantage vis-a-vis its competitors in markets open to competition.

4 *Consultation and dispute settlement.* There would be an orderly process for resolving disputes.

5 *Negotiability.* Any barrier to trade in services would be negotiable. Such negotiations could be on an item-by-item or sectoral basis. They could be bilateral or multilateral.

Many of Rod Grey's criticisms are based on false assumptions about the US position. We have never argued that the GATT articles as a whole should apply to services; we have argued only that certain of the

GATT concepts could be used in developing a general framework or code for services. By jumping to conclusions, Rod hits the wrong target on a great many issues.

Our proposals have focused on trade in services, not on investment. We would require that foreign suppliers of services be given access to the domestic distribution system for services, but they would not necessarily have the right to own the domestic delivery system. This may involve *legal* establishment where that is required by domestic regulations, but *not* the establishment of foreign subsidiaries or branches to produce or distribute the services involved.

Our views on reciprocity are probably not too different from Rod Grey's. We believe that the general rules of a code should be applied on a conditional most-favoured-nation (MFN) basis. The framework should allow for agreements based on reciprocity in areas such as aviation.

The US government has *not* proposed the application of the countervailing duty and dumping concepts contained in the GATT articles. We agree with Rod that these concepts would *not* be workable in services.

I agree with Rod Grey on the utility of Occam's Razor, but unlike Rod Grey I believe that it leads to a comprehensive rather than a sectoral approach. A generic approach will result in less expenditure of negotiating effort, because many principles and procedures can be applied to all service sectors at once.

I don't agree with Rod that we should concentrate first on old business such as the liberalization of trade in textiles and steel and postpone dealing with services. It is no longer possible to deal with the liberalization of goods like textiles that involve job losses for our economy without talking about services, which is one of the major sources of new jobs in our economy.

I also disagree with Rod Grey when he says that there is no real support for the services proposal. We have come a long way over the past four years, and there is a solid group of countries that is now prepared to move ahead in this area. There is also solid opposition from a few key developing countries. I suppose we may ultimately have to move ahead without them.

Negotiating strategies for liberalizing trade and investment in services

Geza Feketekuty

Office of the US Trade Representative

In one of his more whimsical, yet nevertheless profound moments, John Maynard Keynes wrote:

The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas.

In the case of services, the most powerful impact of economic thinking has been the absence of economic thinking. Services has not been a popular topic in the history of economic thought, and there has been little if any thinking on trade in services. In the absence of coherent and disciplined thought by economists, policy has been largely the result of public perceptions drawn from everyday life that fail to capture the crucial contribution of services to economic growth in the twentieth century. A disciplined inquiry into services and trade in services in particular can have a powerful effect for many years to come. I therefore welcome this conference and the contribution it can make to the formation of future government policies in the area of trade.

David Ricardo used the example of English cloth and Portuguese wine to make his case for trade. No economist I know uses the example of English insurance and Swiss banking. The labour theory of value denied that many services had any value at all because they were not the product of physical labour. Indeed many still consider services inferior to manufacturing because services do not result in a product that you can touch and feel.

One of the few examples of services that I could find in economic literature was a discussion by the French economist and satirist, Bastiat. You will remember him as the wit who mocked French tariffs on English cloth in his widely publicized parody of the manufacturers of candles and waxlights who petitioned the government to banish unfair competition from the sun. In another essay he took on a proposal in the French Assembly to provide a break in the Paris to Madrid railway at Bordeaux, because it would redound greatly to the wealth of the Bordeaux porters, commissionaires, hotel-keepers, bargemen and the like, and thereby enrich France. In his essay, Bastiat argued, let's not stop at Bordeaux alone. He wrote: 'If Bordeaux has a right to profit by a gap ... then Angouleme, Poitiers, Tours, Orleans ... should also demand gaps as being for the general interest In this way we shall succeed in having a railway composed of successive gaps, and which may be denominated a *Negative Railway*.'

In the absence of scholarly economic writings, economic thinking on the subject of services has been largely dominated by experiences from everyday life. At a recent meeting of the Organization for Economic Co-operation and Development (OECD) Trade Committee we were treated to an interesting dialogue on the potential gains from trade in the services of hairdressers. A Swiss male delegate opined that if there were trade in hairdressing services, it would be unproductive. He was challenged by a woman delegate from Germany, who thought hairdressing services in her country had been significantly enhanced by imports from France.

One has to ask the question why more attention has not been paid to trade in services. First, services have traditionally been produced where they were consumed, and therefore it has been assumed that they were not tradable. Second, where services did flow internationally, they were largely associated with trade in goods, and it was assumed that their primary purpose was to facilitate such trade

and could be analysed in terms of trade in goods. Third, services tend to be heavily regulated by governments as a public good, and it has been assumed that foreign suppliers are unreliable suppliers of poor-quality services. (Of course, there is a great deal of protectionist and mercantilist thinking in such notions of the public good.) Fourth, to the extent international negotiations on services have taken place, they have focused largely on the regulation of international services such as, for example, telephone calls or airline flights between one country and another. The objective of such negotiations has invariably been to control such activities for various public purposes, rather than encourage competition and an international division of labour.

GROWING IMPORTANCE OF TRADE IN SERVICES

In recent years, a number of fundamental economic changes have been responsible for major changes in the objective economic reality regarding trade in services, though economic thinking and popular conceptions have been slow to change.

First, major advances in communications and computer technology have made it possible to separate physically the production and consumption of most services. Engineers employed by Bechtel in India can make their services available on line to Bechtel headquarters in San Francisco and construction supervisors in Saudi Arabia. The Chicago Mercantile Exchange and the Singapore Exchange have linked up to provide continuous trading. Utilization of major computer centres now shift to different parts of the world with the rising and setting of the sun.

Second, the increasing economic integration of the world and the growth of multinational enterprises has created a demand for services on a global scale. Multinationals want to be provided with services of a known quality and a uniform standard around the world. As service companies have responded to meet the demand for such global services, they have created global service networks that now serve as efficient channels of trade for such services. Specialized communications channels serve as conduits for the exchange and transmission of services, which can now be traded faster, cheaper, and more efficiently than goods.

Third, service inputs into manufacturing output have grown steadily in importance relative to physical labour or material inputs.

In many manufacturing companies white-collar labour now exceeds blue-collar labour. With this trend has come a growing specialization in service activities within manufacturing enterprises and the establishment of separate profit centres for such activities as computer processing, software design, engineering, and research.

With separate profit centres, profit-centre managers soon found it profitable to sell their services outside the firm. Boeing and McDonnell-Douglass, for example, have become two of the larger sellers of data-processing services. On the other hand, unprofitable profit centres tend to get eliminated, and the services are purchased from outside suppliers. Business services have thus become the fastest-growing sector of our economy.

Fourth, goods and services increasingly come bundled together in a single package. A computer or a robot is useless without expensive software and maintenance services. Trade in many goods and services can no longer be separated in economically meaningful terms.

Economic thinking and popular perceptions have been slow to respond to the new economic realities. These new economic realities, however, do explain why the business community in the United States, and increasingly in other countries, has been pushing for increased consideration of trade in services. This brings me to the topic at hand, negotiating strategies with respect to trade in services.

EMERGENCE OF TRADE IN SERVICES AS A TRADE POLICY ISSUE

Trade in services was injected into the trade policy and trade negotiating arena when a small, hardy band of service industry representatives, led by Ron Shelp and Hank Greenberg of AIG, persuaded the US Congress in 1973 to add a negotiating mandate on services to the Trade Act of 1974. After a considerable negotiating effort, the United States succeeded in getting the word 'services' into the government procurement code and the standards code during the Tokyo Round of multilateral trade negotiations. As a further concession to the United States, the developed countries agreed in 1980 to undertake a study of trade in services in the OECD Trade Committee.

It was clear from the beginning that this was a systemic issue, and the principal advocates in the business community for trade negotiations in services have consistently taken the same view. For the past thirty-five years or so, the General Agreement on Tariffs and

Trade (GATT) has provided a framework of contractual rights and obligations, and a set of procedures for discussing, debating, and negotiating trade issues with respect to goods. With all its warts and shortcomings, the GATT system has provided an organized basis for addressing the commercial concerns of business enterprises engaged in trade in goods and for removing barriers to the expansion of such trade. What our businessmen want is both very simple and very difficult; they want the same kind of system for services.

A patchwork of agreements has provided an international framework for some services. There are no agreements at all in other areas of services, particularly in the most rapidly growing information-based services. The agreements that do exist serve primarily a regulatory function. As such they do not provide a hospitable environment for the resolution of commercial issues or the liberalization of barriers to trade. Indeed, regulators tend to be more interested in increasing government intervention in pursuit of regulatory goals, rather than reducing it. They also tend to be more interested in assuring that regulatory goals are achieved than in assuring that a businessman engaged in trade can make a profit, and as we all know, profit is the incentive that drives all economic activity in a market economy.

The task, therefore, in the view of US service-industry interests, was to develop a general framework for trade in services. The United States has pursued this goal both in the OECD and in the GATT.

Our first task in the OECD Trade Committee was to define what was to be studied about services. There were those who proposed that services should first be defined; we could have had wonderful semantic and philosophical arguments on the subject. There were others who argued we should collect statistics; since governments collect little data on trade in services this could have led to a prolonged debate with statistical experts. Others proposed that we examine the regulatory structure for services; we could easily have immersed ourselves in regulatory minutiae. The United States proposed that we look at trade problems involving services, and ultimately this proposal was accepted as the approach that would most readily shed light on the key issue, namely if there were any trade problems in services that were not being addressed adequately.

The second issue that needed to be resolved was how we would go about studying trade problems. There were those who argued for

sectoral studies. They tended to do so because they felt that this approach would be more manageable. It would emphasize the differences among sectors, and therefore make the case for a sector-by-sector approach to negotiations, rather than a general or horizontal approach. The United States argued for a general inventory approach, with a cross-cutting analysis of the types of barriers found in service sectors generally. We took this approach because it would lead US to an overall conclusion more quickly, and because we wanted to emphasize the possibility and utility of a more general approach to negotiations on trade in services. In order to disprove the argument that it couldn't be done, we produced in less than six months a general inventory of trade barriers based on complaints by US service industries. The Solomonic decision of the OECD Trade Committee was to pursue the study of trade problems in services through both a sectoral and a general horizontal approach. A great deal of work has been done on this basis over the past two years.

The next major decision facing the OECD Trade Committee will be on the recommended approach to future negotiations on services. I am confident the committee will decide to recommend both a general and a sectoral approach to negotiations. It will need to contain some general elements, because it will need a common economic and political focus, and a framework for setting out the issues from a trade point of view. Without it, it could easily lose its focus on trade liberalization. Moreover, a common framework can save time in establishing basic principles and concepts. To a large extent, the principles and concepts which are likely to emerge as the basis for a common framework are principles of good government, an orderly process for approaching negotiations, and a coherent notion of what one is getting from any negotiated commitments. A general approach, moreover, can assure that sectors that do not pose special issues are included in the process of liberalization rather than being excluded because they do not warrant separate sectoral negotiations.

At the same time, a sectoral focus will be essential to the achievement any real liberalization of trade in many service sectors because a number of the key service sectors have special characteristics and a regulatory and international negotiating history of their own. A sectoral or an item-by-item approach to negotiations is more likely to lead to hard, concrete commitments where there are extensive barriers to trade or heavy regulation of activity.

GENERAL PRINCIPLES FOR A FRAMEWORK FOR TRADE IN SERVICES

To date we have given considerable thought in the United States to the general principles that could provide the basis for a general code or framework for trade in services. The first principle is *transparency*. This would require governments to identify barriers to trade in services explicitly and to notify other countries of any changes in laws and regulations affecting trade.

The second principle is *national treatment*. This would require governments to administer all domestic laws and regulations that are not identified as trade barriers on a non-discriminatory basis, treating domestic and foreign suppliers equivalently. In other words, governments would have to make a clear separation between the protection of domestic services industries and the domestic regulation of services. Governments would assume the responsibility of giving foreign suppliers of services national treatment in the application of regulations that are not notified as trade barriers.

The third principle is that *public monopolies should maintain an arm's-length relationship between their public monopoly and their involvement in competitive markets*. This means that a public monopoly should not use its monopoly position to disadvantage a foreign competitor in the international arena or in domestic commercial activities outside of the monopoly mandate. For example, a foreign PTT monopoly should not be able to use its control over telephone lines to disadvantage a foreign data-base company if the law allows the PTT and foreign companies to supply such services on a competitive basis.

The fourth principle is *reciprocity*. Basically this says that if any country violates a previously negotiated deal, other countries affected by that action can withdraw some of their own commitments to restore the balance.

The fifth principle involves the *orderly settlement of disputes*. Countries agree to consult with each other when there is a problem, and seek to resolve it on a bilateral basis. If this process doesn't work, there is an impartial mechanism in the GATT for sorting out the facts and for weighing the respective arguments.

A framework as outlined above would make possible a wide variety of negotiating approaches. It could provide the basis for sectoral or item-by-item negotiations. It could also provide the basis for an

overall standstill commitment, by which I mean a commitment not to establish new barriers to trade in services except in specified circumstances.

US ideas on a possible negotiating approach were first laid out by Bill Brock in an article published in November 1982 in *World Economy*, the periodical of the Trade Policy Research Centre in London. They were also set out in a more indirect way in the US National Study on Trade in Services submitted to the GATT in January 1984. More recently, these ideas have formed the basis for the negotiation of the US/Israeli Declaration on Trade In Services, which will form part of the upcoming agreement on the US/Israeli free trade area.

In developing our ideas, we also had to make some decisions on what should be included in our definition of trade in services. We decided, for instance, that the movement of people and questions of immigration policy should not be covered within any agreed negotiating framework. We also decided, for example, that we would not include investment in services establishments within the negotiating framework. This was not a popular decision with our business community, but we felt that investment restrictions would be far more difficult to tackle than trade restrictions, and that we should, therefore, restrict ourselves to services supplied across national borders.

This distinction between trade and investment is probably one of the most difficult conceptual issues we have had to address. People are not used to thinking of the distribution system for services as separate from the traded service, even though no one has a difficulty in separating the activities of an automobile dealership from trade in automobiles. Along the same lines, it should be possible to separate the activities of local insurance brokers from insurance provided by a company located abroad.

PREPARATIONS FOR TRADE NEGOTIATIONS IN SERVICES

I would now like to turn from some of the conceptual issues to some of the more practical aspects of reinforcing the preparation of negotiations and to some of the questions of negotiating strategy that we must confront in the months ahead.

Early in the process of building consensus on trade in services, it became clear that we would have to tackle a number of systemic

problems that went considerably beyond the absence of a GATT-like structure for trade in services. The absence of theoretical underpinnings for trade in services, for example, needed to be corrected. We took a number of steps to encourage academic work, including sponsorship of seminars and raising funds for academic research in services. These and other efforts have paid off, and the gap is being filled by conferences such as this.

Another systemic problem is that governments have not collected much detailed data on trade in services beyond the minimum needed for balance-of-payments accounts. Moreover, the balance-of-payments data are deficient, since large areas such as data processing, tuition payments, and professional services have escaped measurement. We have taken a number of steps to help correct this deficiency, including the sponsorship of two research contracts on data needs and availabilities, the formation of an interagency committee in the US government to overhaul US government-services data, and the formation of a working party in the OECD on data on services trade.

A third systemic problem has been the absence of any centralized responsibility for trade in services in foreign governments, or put another way, the absence of either expertise or a mandate for services in foreign trade ministries. One of our key objectives in pushing for trade-oriented discussions of services in both the OECD and the GATT has been to develop expertise and lines of responsibility for trade in services in foreign government structures. We also decided to systematically raise individual trade issues with trade officials in other governments, to force them to develop both expertise and a level of responsibility for trade issues in services. Moreover, our vigorous pursuit of specific services issues in bilateral consultations and negotiations has helped to clarify the nature of trade problems in services and possible solutions. By resolving a number of concrete issues of concern to our service industries, we were also able to expand and reinforce the private sector constituency for future trade negotiations in services.

Another systemic problem was that many US laws did not lend themselves to a commercially oriented approach to trade issues. Also, the various committees of the Congress with substantive jurisdiction in individual service sectors had never really focused on the trade dimension. To begin the process of overcoming these problems, we worked with the private sector and congressional staff in organizing

congressional hearings and drafting new legislation. The Omnibus trade bill, which passed the Congress in October 1984, included major provisions on trade in services that were debated and discussed in a number of different congressional committees.

Another problem we addressed was the lack of broad public understanding of trade in services. For a number of years we produced our own newsletter to report on the area of trade in services, and we worked with the press in disseminating news about issues and negotiations. This has inevitably led to increased requests for information and for speaking engagements.

There remains a general uncertainty about the purpose of new agreements on trade in services, and how they would meld with existing regulations and institutions. To help answer these concerns, we have begun to take advantage of opportunities for negotiating bilateral agreements. The US/Israeli agreement was one such opportunity. The Canadian/US discussions of a possible sectoral agreement on informatics also provide an opportunity for applying trade concepts to agreements in services. Another opportunity arose recently when representatives of the National Association of Architectural Accreditation Boards came to see me. It turns out they have negotiating bilateral agreements on mutual recognition of professional accreditation with relevant authorities in other countries, and we have decided to co-ordinate our efforts in the future. These and other bilateral initiatives are giving us opportunities to set useful precedents.

The Israeli agreement should prove particularly helpful to us. It is a comprehensive agreement covering all services sectors. It establishes the key principles that we believe should be part of any general agreement, but puts them on a best-efforts basis at this stage. At the same time, the agreement calls for a sector-by-sector review of the implementation of the agreement, with the objective of establishing a legally binding agreement at the end of the process. This procedure will enable us to go to federal and state regulatory agencies with a concrete set of commitments, and work out any sectoral understandings that are required. It will, in effect, be a learning experience for both the United States and Israel. In the end, we should have an operational agreement as well as a much better understanding of the issues that will need to be addressed in multilateral negotiations.

Another problem that will have to be dealt with is the relationship of any trade agreements in services to various existing international sectoral agreements and sectoral organizations such as the International Telecommunications Union (ITU), International Air Transport Association (IATA) and the Consultative Shipping Group (CSG). Over the past few years we have begun a dialogue with responsible officials in these organizations, pointing to the relationship that now exists between the Standard Code in the GATT and the International Standards Organization or between the Customs Valuation Code in the GATT and the Customs Co-operation Council in Brussels.

THE OUTLOOK FOR NEGOTIATIONS

This brings me to the bottom line. How are we going to get multilateral negotiations on trade in services?

I should begin by noting that trade in services has risen in the hierarchy of US trade-policy objectives over the past few years, and it is now one of the top objectives. Services have become fully embedded in the US trade-policy process. The question for the United States is not if new negotiations will be held, but if they will be carried out bilaterally or multilaterally among a group of interested countries or among the GATT member countries as a whole.

At the moment most developed countries are committed to a process leading to negotiations. A number of developing countries like Korea, Jamaica, Chile, the Philippines, and Singapore have shown an interest but have not publicly committed themselves. A large number of developing countries, in particular India and Brazil, are adamantly opposed. At the same time, both India and Brazil have indicated that if negotiations go forward despite their opposition, they will feel compelled to join the negotiations in order to protect their interests. In my mind, the issue therefore comes down to whether a number of key countries are prepared to move ahead now, even though we may not have universal consensus.

My prediction is that the major developed countries will decide within the next year or two to move to negotiations. At the same time I expect that a number of developing countries will decide to participate, some as observers, others more actively. The process will take a considerable amount of time, though I expect some concrete results by 1990. Whether this will be in the GATT or outside remains to

be seen. Where it will take place is likely to have major implications for the GATT, since trade in goods and trade in services have become highly integrated in the US trade-policy process, and the United States will insist on linkage between concessions on trade in goods and trade in services in any future negotiations, wherever and however they are conducted.

The reason for this policy by the United States has both a strong economic as well as a strong political rationale. In economic terms, trade in services has become a major source of new jobs for the United States, and there is little sense in negotiating concessions in basic industries like steel or textiles, where we are going to lose jobs, without foreign concessions in areas like services, where we are going to gain jobs. Politically, we no longer have a strong enough political coalition to support free trade among goods industries alone. We need the support of the services industries to preserve an open trade policy. Service industries were an important factor in helping to pass the recent Omnibus trade bill, which will enable us to carry forward our liberal trade policies despite a growing protectionist environment.

Before closing, let me make a few final comments on Canadian/US trade in services. I have already mentioned the discussions we have initiated in the informatics sector, following a very helpful paper written by Rod Grey and a proposal made by Mr. Frazee, the chairman of the Royal Bank of Canada. Our initial discussions have been very productive, and I expect we could work out an agreement in twelve months if the political decision is made to push ahead.

We have given thought to other initiatives we could pursue in the context of these sectoral discussions. We will certainly be interested in pursuing the discussion already underway between our Association of State Architectural Accreditation Boards and the responsible provincial authorities in Canada. We would also be interested in exploring possibilities in other service sectors. One idea might be to look at short-haul, cross-border commuter flights, and to take another look at trucking. We may also want to take a look at the US/Israeli agreement and examine whether it might provide a useful model for Canadian/US trade in services.

I hope that these remarks will help to give a better understanding of what we have been trying to achieve through international discussions of trade in services, and how your deliberations at this conference could help support those discussions.

The Canadian treatment of foreign banks: a case study in the workings of the national treatment approach

John F. Chant

Simon Fraser University

On 28 June 1984, the Canadian House of Commons gave third reading to a bill to raise the ceiling for foreign banks operating in Canada to 16 per cent from 8 per cent of the Canadian dollar assets of the banking system. This move represented a measured step towards the resolution of a continuing dispute between the US and Canadian governments with respect to the treatment of the other nation's banks participating in domestic banking activity. Despite the reception of approval accorded this step, many questions remain unanswered. Is the removal of the ceiling adequate in itself to signal a changed attitude by Canadian authorities to foreign banks? Or is it merely one stage in a hard-fought battle to strengthen the competitive position of foreign, most notably, US banks, in the Canadian market, a battle that will continue without abatement?

The purpose of this paper is to explore the workings of Canadian/US relations with respect to the Canadian policy towards the operations of foreign-owned banks. One aspect of the study consists of a documentation of the issues that have generated controversy and disagreement between the two countries. In addition, as a case study, it assesses the usefulness of the principle of 'national treatment' adopted by the United States as its policy towards multinational banking, and evaluates the degree to which this policy permits two countries that pursue substantially different approaches for the regulation of banking institutions to achieve agreement with respect

to their treatment of the participation of each other's banks in domestic banking.

While this paper concentrates on the Canadian treatment of foreign banks and only considers the US treatment of foreign banks tangentially, the treatment of foreign banks in Canada has considerable relevance for the US treatment of Canadian banks seeking to extend their activities in the United States. Senator Jake Garn, chairman of the Senate Banking Committee, has proposed legislation that would require US banking authorities to consider 'the treatment of US banks in the home country of any foreign bank applying for a national branch or agency in the US.'¹ While this legislation is not supported by Treasury Secretary Donald Regan, he is sympathetic to the purpose of the legislation, making a statement to the effect that 'he would not hesitate to take vigorous action to protect US interests if attempts to persuade offending countries to loosen their regulations for US banks are unsuccessful.'² The reaction of US banking authorities to the Canadian banking policy is especially significant at the present time. Senior executives of several of the major banks have expressed the intention to expand their activities within the United States,³ and, in particular, the Bank of Montreal has taken over the Harris Bankcorp of Chicago, the thirty-third largest bank in the United States.

The assessment of the national treatment approach embodied in this paper is directed at the problems in its application between two countries that have substantially different approaches to regulation. The first section outlines the distinctive features of the Canadian system of banking regulation that are relevant to this assessment and contrasts them to the features of the US system. The second section traces the evolution of the attitudes of Canadian banking authorities towards foreign banking activities in their country and describes those elements of Canadian policy that would be interpreted as antithetical to the national treatment approach. Finally, the national treatment approach to multinational banking is assessed in the last section.

THE REGULATION OF BANKING IN CANADA

In order to understand the basis of disagreements between Canadian and US authorities over Canadian treatment of foreign banks, it is important to recognize the distinctive features of the Canadian approach to the regulation of banking. For this purpose, it is useful to make a distinction between regulation by 'rule' and regulation by 'discretion'. Regulation by rule implies that the authorities responsible for regulating some activity establish a set of rules to govern the behaviour of the regulated and intervene only when the violation of one of the underlying rules has become apparent. In contrast, regulation by discretion involves much less clearly defined powers for the regulated. Rather the regulator determines the acceptability of certain types of actions on a case-by-case basis. Much of the analysis that follows is directed towards demonstrating the strong emphasis placed historically by the Canadian banking authorities on regulation by rule.

The locus of regulation

Section 92 of the Constitution Act, 1867, formerly known as the British North America Act of 1867, which delineates the powers of the federal government in Confederation, placed matters of banking and currency under the authority of the federal government. While the scope of this delegation of powers has been questioned, federal control over the regulation of the chartered banks has been virtually unchallenged.⁴ This situation contrasts sharply with the dual system of regulation that exists in the United States. There the regulation of banking is split between state and federal authorities. Some banks, if they choose to opt out of membership in the Federal Reserve system and protection for their customers under the federal system of deposit insurance, can be wholly state regulated. At the other extreme are national banks regulated primarily by federal authorities but which must conform to the basic requirements of the state within which they operate. Finally, some state banks must follow the requirements of federal regulations as a result of their membership in either deposit insurance or the Federal Reserve. To the extent that US banks are subject to state regulation, they may have substantially different

powers because the rules governing banks differ markedly among states.⁵

Approach to regulation

The activities of the chartered banks in Canada have been governed by successive versions of the Bank Act, a piece of federal legislation. This act is quite distinctive in that it has always incorporated a finite duration of ten years in each successive version from the time of its initial passage in 1871. This provision encourages the re-evaluation and revision of banking legislation at regular intervals. It means that the opportunity exists for change on a periodic basis, but it also tends to discourage consideration of change between revisions.⁶

The Bank Act has been the embodiment of a rules approach to banking regulation. It defines the power of the banks, but more importantly, it sets the conditions that must be met to become a bank. Until recently, it defined the powers of the chartered banks consistently with the 'commercial loan' theory of banking or the 'real bills' doctrine. Banks were to make self-liquidating loans by financing primarily the production and distribution of goods. Up to 1980, sections 86 and 88 of the Bank Act defined the banks' lending powers with respect to financing the production and distribution of goods. More important, however, were the omissions from the Bank Act. The number and location of branches were neither limited nor even controlled. Branching was solely a concern of the bank management. Similarly, though initial capital requirements were an important element of entry requirements, any required relationship between subscribed capital to borrowings or deposits has been absent in Canadian banking legislation.

Discretionary control of banking behaviour is only one among several approaches to attaining the goals of banking regulation. As a substitute, the Canadian government developed a system of prudential regulation that was directed to limiting the activity of banking to assuredly dependable enterprises. The main element of the Canadian approach was a stringent qualification for entry into commercial banking built around the need to acquire a charter, and high capital requirements. Some further indication of the role of regulation by rule in Canada can be determined by examining the

restrictions on bank entry and the powers of the inspector-general, the regulator of Canadian banks. Finally, a recent departure from the principle of regulation by rule is noted.

Restricted entry

Until the 1980 revision to the Bank Act, a charter for a new bank could be obtained only through a special act of Parliament. As Bond and Shearer note:

Such a bill must be introduced as a private member's bill and must be passed in a private member's hour. Under Parliamentary rules it is comparatively easy for a few members to hold up the procession of the bill. Once passed second reading, the bill must be referred to a standing committee, where the sponsors of the bill may be cross-examined and asked to 'show their capacity to carry on the banking business' before the bill is reported to the House for third reading. Once the act of incorporation is passed and the charter granted, the sponsors of the new bank must still obtain a certificate from the government entitling them to commence business. Before issuing this certificate, the government must satisfy itself that all legal requirements have been met. (Bond and Shearer, 1972)

Possibly, the most significant aspect of this approach was the requirement that the bank charter had to be obtained through a private member's bill. These bills can best be characterized as relating to issues of concern to a private member as distinct from the party in power. Bank charters were required to compete with all special concerns of private members in the very limited time available for these bills.

The second element of the restriction to entry into Canadian banking has been the high initial capital requirement. As early as the Bank Act of 1871, the first after Confederation, any new bank was required to have a subscribed capital of \$500,000 Canadian (Jamieson, 1953). At the time, the comparable requirement in the United States was only \$50,000 US for national banks and as low as \$10,000 US for some state banks.

An indication of the effectiveness of this restrictive approach to entry can be seen through examining the rate at which new chartered banks succeeded in completing the process and in actually become active.⁷ From Confederation in 1867 until 1925, seventy-two banks gained charters and of these, thirty-seven became active.⁸ Most striking, however, is the period from 1925 to 1968 during which a total of five bank charters were issued, and only three of these emerged as active banks. With five mergers, the total number of active banks fell from eleven to nine over this forty-three year period. Finally, during the period between the bank acts of 1967 and 1980, another six banks gained charters and all six became active. The total number of banks increased by only three because of the merger of two of the new banks with existing banks and another merger of two of the established banks.

The role of the inspector general of banks

The office of inspector general of banks was created in 1924 in reaction to the failure in the previous year of the Home Bank, Canada's last bank failure. Jamieson notes:

the government had always been opposed to assuming any responsibility in connection with bank inspection [and] that the principal objections to government inspection had always been that it would require too large a staff and cost too much to make it effective, also that the work performed would be largely a duplication of that done by the banks' own inspectors and latterly the shareholders' auditors. (Jamieson, 1972, 65-6)

These sentiments were reflected in the legislation establishing the office. One witness before the Banking and Commerce Committee of the House of Commons argued 'that an effective system of government inspection or supervision could be adopted with a very small organization and practically no duplication of effort' (Jamieson, 1972, 65). In July 1924, the office of inspector general of banks was created by an amendment to the Bank Act. The present powers of the inspector general with respect to examination and inquiry are

essentially unchanged from the original statement and are contained in Section 246(2) of the Bank Act:

The Inspector, from time to time, but not less frequently than once in each calendar year, shall make or cause to be made such examination and inquiry into the business of each bank as the Inspector shall deem necessary or expedient, and for such purposes may take charge of the premises of [sic] the assets of the bank or any portion thereof, if the need should arise, for the purposes of this Act having reference to the safety of the interests of the depositors, creditors and shareholders of the bank and other provisions of this Act and being duly observed and that the bank is in sound financial condition, and at the conclusion of each examination and inquiry shall report thereon to the Minister.⁹

Indeed in testimony before the Finance, Trade and Economic Affairs Committee of the House of Commons, the current inspector general stated that his total staff consisted of only twenty-one people and that the annual inspection could be best described as a 'management audit of the banks'.¹⁰

The role of the inspector general can be contrasted with that of the supervisors and examiners of banks within the United States. Some flavour of the difference between the two approaches can be seen from a study by the American Enterprise Institute of proposals to deregulate depository institutions. It describes the duties of the controller of the currency:

The controller of the currency must approve applications for the formation of new national banks..., the establishment of branch offices by these banks, and mergers and consolidations that produce a national bank. He arranges the examination of these banks to determine their financial soundness, quality of management, and compliance with laws and regulations. He regulates and supervises the trust activities of these banks and is responsible for the disclosure reporting proxy requirements and securities activities under federal securities laws. (American Enterprise Institute, 1984 [6])

Similarly, the discretionary powers appear quite broad in the same study's description of the Federal Reserve's power with respect to bank holding companies:

The FRB determines which activities can be performed in bank holding companies or in non bank subsidiaries of such companies under the statute's authorization of their performance of activities *determined by the board* to be closely related to banking or to managing or controlling banks.¹¹ (American Enterprise Institute, 1984 [7])

The Bank Act of 1980

Section 315 of the Bank Act of 1980 represented a substantial departure from the traditional rules approach to bank regulation by declaring:

The Governor in Council may make regulations generally for carrying out the purposes and provisions of this Act and, without restricting the generality of the foregoing, may make regulations prescribing anything that, by virtue of any other provision of this Act, is to be prescribed by regulation.¹²

This section permits the inspector general to make regulations about, among other things, the adequacy of liquidity and capital and also the nature of powers of foreign banks. It will be argued later that this change need not be interpreted as a major redirection of banking policy, but rather was necessitated by the prospect of the entry of foreign and other Schedule B banks that had not met the stringent tests traditionally required for entry into banking.

POLICY TOWARDS FOREIGN BANKING

The formalization of the policy towards foreign banking in Canada can be traced to the Bank Act of 1967, which incorporated for the first time a limit to the degree of foreign ownership to less than 25 per cent of the shares of any chartered bank. This change, which was motivated by the take-over of the Mercantile Bank, a small specialized bank owned by Dutch interests, by the First National City Bank of New York in 1964, represented a major reversal of policy. Not

only had the Mercantile Bank been foreign owned since its chartering in 1953; at least three other Canadian chartered banks had been foreign owned in the past.¹³

The background for restrictions on foreign banks

While the prohibition on foreign-owned banks was only formally introduced in response to the take-over of the Mercantile Bank in 1964, the growth of sentiment favouring a restriction on foreign banking in Canada can be traced prior to this event. Walter Gordon, the minister of finance at the time of the take-over, had been chairman of the Royal Commission on Canada's Economic Prospects (otherwise known as the Gordon Commission) which had made its final report in 1957. The *Report* of the commission was unequivocal:

We believe it to be most important that Canadian control be maintained of our principal financial institutions – the chartered banks and the life insurance companies incorporated in Canada. . . . These institutions form the very core of our financial and business sector and together they control a considerable proportion of the savings of Canadians. . . . The Commission suggests that appropriate action be taken to prevent any substantial measure of control of these institutions from coming into the possession of non-residents. (Gordon Report, 1957 [397])

The commission argued, as an elaboration, that foreign control of major financial institutions would be detrimental to the conduct of monetary policy where there 'should be a reasonably close and perfectly informal relationship between the officials of the central bank on one level, and the officials of the commercial banks on the other' (Gordon Report, 1957 [397]). Apparently more significant to the commission was domestic control over financing: 'the role of banks and insurance companies in financing economic activity in Canada might be adversely affected, if control of these important institutions were in the hands of non-residents with major interests in other countries to consider' (Gordon Report, 1957 [397]).

The theme of the Gordon report was continued with the Royal Commission on Banking and Finance (the Porter Commission),

appointed in 1961 to make recommendations for the next Bank Act revision scheduled for 1964. Despite a strong commitment to measures to enhance and support competition in Canadian financial markets, the Porter Commission expressed a number of serious concerns about unrestricted foreign ownership and control in the Canadian banking sector. First, they had a general concern about the relation between foreign ownership and the concentration of ownership within banking. On the one hand, they saw individual ownership of bank stock by nonresidents as a force that countered concentration of shareholder power. On the other hand, they feared the 'large concentration of economic and financing power which are sometimes centered in large foreign banks'.¹⁴ Second, the commission felt that

foreign-owned banks, especially those controlled in the United States – might be in a position to obtain the business of firms whose parent companies already deal with the parent bank, without offering better or cheaper service in our banking market. (Porter Report, 1964 [374])

Finally, though they noted the Gordon Commission's concerns about the possibility that foreign banks might be less sympathetic to Canadian monetary policies, they also realized foreign-owned banks would be under the same set of controls as domestic banks and would not necessarily have any more favourable access to foreign funds.

The Porter Commission did recognize the benefits that could accrue from a foreign presence in Canadian banking. The approach suggested by the commission would permit foreign banks to establish agencies 'which would be free to conduct all phases of their business, other than the acceptance of deposits in Canada' (Porter Report, 1964 [373]). The agencies would be limited in their number of offices, but licences for additional offices would be granted if the foreign bank could demonstrate them to be necessary for their business and a useful addition to Canada. While the presence of such agencies was viewed as being beneficial in improving banking facilities available to Canadians, it would be noted that the commission also argued that 'it might reduce the pressure on foreign banks, particularly American

banks, to acquire ownership in Canadian financial institutions. . (Porter Report, 1964 [374]).

In conclusion, the commission expressed its views on the desirability of the ownership and control of banks operating in Canada. Here the commission was clear and unequivocal: 'a high degree of Canadian ownership of financial institutions is in itself healthy and desirable, and that the balance of advantage is against foreign control of Canadian banks' (Porter Report, 1964, [374]).

The Bank Act of 1967 reflected the Canadian concerns that were precipitated by the First City take-over of the Mercantile Bank. Two restrictions that served to preclude foreign ownership were added to the Bank Act. The first, the more explicit, prohibited the transfer of bank shares to nonresidents if the transfer increased total nonresident holdings in that bank to more than 25 per cent of outstanding shares. The other, though not explicitly directed towards the problem of foreign ownership, limited the holdings of a bank's share by any one interest to no more than 10 per cent of the outstanding shares of the bank. The effects of this latter restriction by itself in limiting foreign bank entry should not be underestimated. Any foreign bank would have two alternative ways to enter Canadian banking. The foreign bank could join a consortium of at least nine other parties or it could attempt to attract subscriptions for dispersed shareholders – Canadian or foreign – to complement its maximum 10 per cent. As will be seen later, neither of these alternatives could be expected to be attractive.

The restrictions on foreign banking that were incorporated in the 1967 Bank Act prevented only formal establishment as a chartered bank and did not preclude the undertaking of other types of financial activity by foreign banks. Several US banks gained a presence by acquiring substantial interests in existing Canadian trust companies. Others established subsidiaries to specialize in activities such as leasing, factoring, and term finance, while still others established representative offices. In assessing the scope of foreign bank activity in Canada, the Economic Council of Canada stated:

Various estimates have been produced regarding the extent of foreign bank activity in Canada. One of these estimates indicates that there are over one hundred foreign banks

operating in Canada. Others claim a more modest number of about fifty that carry out any substantial banking activity. (Economic Council of Canada, 1976 [22])

The restrictions on foreign banks quickly became one of the main items on the agenda when the imminent revision of the Bank Act started to be discussed in the mid-1970s.¹⁵ Several factors focused attention on this one aspect of the then current bank act. First, a number of the Canadian banks with extensive activity in the United States were concerned with the policy proposals made in that country regarding foreign banking activity. Any requirement of reciprocal treatment imposed in the United States or other countries might jeopardize the continuation of their operations. Second, as already seen, the failure to recognize foreign bank subsidiaries as 'banks' did not prevent them from entering in other guises. Some Canadian bankers argued that the then current treatment permitted foreign banks to carry on activities which they themselves could not carry on. For them, the removal of the prohibition on foreign banks in Canada would provide an opportunity for controlling the activities of foreign banks and limiting them to no more than the powers available to Canadian chartered banks.

Prior to the impending revision of the bank act scheduled for 1976, the Economic Council of Canada prepared a report, *Efficiency and Regulation: A Study of Deposit Insurance*, as an independent input to the deliberations on banking legislation. The council's recommendations regarding foreign bank entry can be best understood in the context of its concern with the existing limitations on entry into banking by any enterprise, whether foreign or domestic. The council recognized that the limitation to equity holdings by any one interest in ownership in a chartered bank constitutes a major obstacle to entry into banking. Not only did it limit the formation of new banks by entrepreneurial interests – it also prevented any further movement of domestic new banks into banking activity through creation of subsidiaries. The council apparently accepted the principle of the ownership ceiling for large banking concerns but made proposals for easing it in the case of new and smaller banking institutions. In particular, the Council argued:

Any Canadian institution currently carrying on deposit activities should be eligible to receive a bank charter, either in its own name or on behalf of a subsidiary company.... Under this scheme there would be no ownership restrictions for new Canadian-owned banks during an initial period unless they became larger than a designated size. The legislation should state explicitly the latitude of the Supervisor of Deposit Institutions in determining the size limitation and the transition period. After the transition period, a bank could remain wholly owned by any Canadian or eligible group of Canadians, on condition that the number of branches and the size of the bank, measured by the current value of assets, be limited to that allowed during the transition period. If the bank wanted to expand beyond this designated size after the transition period, the major founding interest could retain more than 10 per cent (possibly 25 per cent) of the shares, the maximum presently allowed for shareholders of banks. If an institution became sufficiently large, however, the 10 per cent maximum should apply to all shareholders, after a designated divestiture period. (Economic Council of Canada, 1976 [77])

The council applied essentially the same principle to entry into banking by foreign banks, with one exception. The council proposed a foreign-owned banks act that would provide for the entry of foreign-owned banks under the same conditions proposed for the entry of new domestic concerns. The only difference was that during an initial stage 'a foreign bank entering the Canadian banking system would have its power to branch and expand restricted' (Economic Council of Canada, 1976 [95]). The council suggested this difference so as to allow new Canadian banks the opportunity to take advantage of easier entry into banking activities. After the initial period of transition, the foreign-owned banks would have essentially the same options as domestic-owned banks. Each could operate on the same basis as the initial stage or it could obtain the same powers as domestic banks on divestiture of shares (with retention of up to 25 per cent by the parent) and an overall size limit. Once the foreign-owned bank reached a large size, it would be subject to the same restrictions as large Canadian banks in that any ownership interest would be limited to 10 per cent of total equity.

The federal government's initial proposals with respect to foreign banking were contained in the *White Paper on the Revision of Canadian Banking Legislation* issued in August 1976 by the minister of finance, Donald S. Macdonald (*White Paper*). The proposals were generally similar to those of the Economic Council of Canada but differed in a number of important respects. The *White Paper* stressed the need for dispersed ownership of major banks, stating:

A basic rule for Canadian banks denies any shareholder or associated shareholders a controlling interest in a bank. This rule ensures that a chartered bank does not become captive to a person or associated persons who have business interests other than banking, thus avoiding a potential for significant conflicts of interest or possible risks to the bank's depositors. (*White Paper*, 1976 [27])

The *White Paper* recognized only two categories of banks: widely held and controlled. By definition, 'widely held' banks could not be foreign owned because this category would be subject to both the 10 per cent ceiling on ownership by any one interest and the 25 per cent ceiling on foreign ownership. Foreign bank subsidiaries would 'be subject to such limitations on growth and size in relation to the authorized capital of the bank as may be approved by Governor in Council' (*White Paper*, 1976 [28]). In addition, the incorporation of a foreign bank subsidiary would be subject to the following major provisions:

- 1 Its size would be limited to twenty times its authorized capital.
- 2 The maximum authorized capital for any foreign bank would be limited to \$25 million Canadian.
- 3 Increases in authorized capital beyond a minimum level would be contingent on the performance of the bank subsidiary.
- 4 The foreign bank would be limited to one place of business but could open up to five branches with the approval of the minister of finance with respect to number and location.

5 A parent foreign bank would not be permitted affiliates in Canada other than those permitted to the subsidiary under banking law.

6 The total operations of foreign banks would be limited to 15 per cent of total commercial lending in Canada.

7 The subsidiary would be required to have assets in Canada at least equal to its Canadian liabilities.

8 A foreign bank subsidiary would be permitted only when favourable treatment for Canadian banks is reciprocated in the jurisdiction of the parent bank (*White Paper*, 1976 [28-9]).

The proposals of the minister of finance differed from those of the Economic Council of Canada in two notable respects. First, the minister of finance did not acknowledge the council's proposals for an intermediate category of bank that would have more tightly held ownership and more limited powers than were permitted to large banks, yet would have greater powers and less concentrated ownership than the new category proposed by the minister.¹⁶ Second, and more significantly, the minister added the further restriction, absent in the Economic Council of Canada's proposals, that the total size of foreign bank affiliates be limited to 15 per cent of the total lending of the banking system.

The resulting legislation, embodied in the Bank Act of 1980, followed the *White Paper* proposals in most respects. A distinction was created between Schedule A banks, which conformed to the limits on concentrated ownership, and Schedule B banks, which did not. Necessarily, foreign bank subsidiaries must seek incorporation as Schedule B banks.

Schedule B banks are subject to a different set of requirements than those required for the Schedule A banks; many of these were foreshadowed in the *White Paper*. The major difference between regulations of the Bank Act of 1980 and the proposals in the *White Paper* was that the ceiling on the operations of all foreign banks in Canada was established at 8 per cent of total domestic assets of all banks in Canada rather than 15 per cent of total commercial lending.

The foreign bank reaction

Foreign banks responded quickly to the opportunity to participate in the Canadian banking market, albeit subject to the restrictions imposed on them as Schedule B banks as a group. By mid 1984, the total number of foreign-owned banks had reached fifty-eight, with some operating as many as eleven branches.

Despite the considerable response in the number of banks seeking status as Schedule B banks, the foreign banks have substantial criticisms of their treatment in Canada which they have put forward in a series of submissions to the Inspector General (1982, 1983).¹⁷ The criticisms are directed towards their change in status as a result of the 1980 Bank Act and their treatment subsequent to qualification as Schedule B banks.

The first paper in the submissions notes: 'Prior to November 1980, 17 US banks operated in Canada through subsidiaries with provincial business corporation charters and had aggregate assets totalling C\$5.5 billion...' and states that on this basis the foreign banks had the freedom to conduct a broad financial service business across Canada. It asserts that all these foreign banks would have preferred 'a banking license without restriction' to the status quo but that most would have chosen their previous status to one of 'a bank charter with restrictions'. It continues to argue that the latter choice was not available to them. Not only did they lose some of their current powers (for example, the right to issue commercial paper with parental guarantees), but the inspector-general's office informally told several banks '“if you do not volunteer, you'll be drafted”, i.e., if you fail to apply for a bank charter we will think of new ways to compel you to do so and on less favourable terms than if you do so voluntarily.' The first paper in the submission also notes that all except one of the US banks operating in Canada chose to accept a bank charter voluntarily.

The US banks also criticized the various restrictive measures that were applied primarily to foreign-owned banks, such as the ceiling on the foreign bank sector, the ceiling for individual banks, the need for licence renewal, the need for approval for branches, and the restrictions on offshore activities, which have been discussed above.¹⁸ The first paper concludes that despite the characterization of the 1980 Bank Act as a positive step towards easier entry for foreign banks,

viewed from the perspective of those US banks operating in Canada prior to November 1980 the Bank Act did not represent a step forward but instead the imposition of 'protectionist' restrictions that will seriously curtail their growth and increase significantly the cost of doing business. The Canadian position on this point should be regarded as extremely *self-serving* and only applicable to those US banks not operating in Canada prior to November 1980.¹⁹

For present purposes, a more significant issue raised by the foreign banks has been the exercise of discretionary power by the inspector general with respect to the foreign banks operating in Canada. In their submission of February 1982 the foreign banks outline the instances of discretionary measures taken by the inspector general which do not apply to domestic banks. These measures include

- Limit to offshore funding.
- Prohibition against sale of bearer paper to offshore borrowers.
- Prohibition of the sale of assets by foreign banks to their parent banks.
- Instructions from the inspector general to concentrate on loans to small-and medium-sized businesses.
- Suggestion to maintain a 20:1 asset ratio.
- Request to new foreign banks to locate their head offices outside of Toronto.²⁰

The submission of 1982 subsequently served as a basis of discussion between the inspector-general's office and the foreign banks. As noted in the submission of February 1983,

The Inspector-General decided to address all the points raised in the *White Paper* and has redefined his position on several of them. In several instances he has ruled in favour of the foreign banks, in some cases he softened his position but did

not change its basic thrust and, in others, he refused to budge and reiterated his position.²¹

By 1983, the emphasis of the foreign bankers' concerns had shifted from that of the year before. The rapid growth of the foreign banks combined with the slow growth of the rest of the banking system threatened to push the foreign bank assets to the 8 per cent limit of bank system assets. While the focus of the foreign bank's second paper appears to be directed towards the pressing problem of the 8 per cent ceiling, the brief reaffirms the view of the first paper that the overall treatment of foreign banks differs from that of domestic banks in Canada. Indeed the second paper states,

On a long-term basis the foreign banks would like to achieve a goal of 'national treatment' in the Canadian banking community. It is our opinion that this could be facilitated more judiciously by allowing the establishment of foreign branches in Canada rather than foreign subsidiaries.²²

Such a step would mean that foreign banking operations in Canada would be totally integrated with the operations of the parent companies and that many of the binding restrictions on Schedule B banks, such as borrowing to deposit ratios, limits to size of loans relative to capital, and restrictions on sources of funds, would no longer apply. As will be shown later, this step would go well beyond the present treatment of foreign banks and would require a fundamental change in the Canadian approach to bank regulation.

NATIONAL TREATMENT: AN ASSESSMENT

Since the passage of the International Banking Act of 1978, the US government has been pursuing a policy of national treatment with respect to the regulation of foreign banking activity in the United States. This policy has been proposed as a device to achieve greater scope for international banking at the same time as permitting individual countries to maintain their own approach to regulation. The Honourable M.E. Leland, Assistant Secretary of the Treasury for International Affairs, in testimony before the Senate Banking

Subcommittee on International Finance and Monetary Policy, characterized the benefits of national treatment in the following way:

The International Banking Act of 1978 enunciated the principle of national treatment as the US Government's policy in the field of international banking. Foreign banks are permitted to operate under the same general conditions as domestic financial institutions. Internationally, our objective has been to secure national treatment for American banks operating abroad, namely that they be able to compete in foreign markets on the basis of equality with local banks. We believe this is a workable principle, it removes discrimination and, handled in the context of regulatory issues and prudential considerations, is fair and pragmatic.²³

A major virtue claimed for national treatment implicit in this statement, and which should be stressed, is that it is intended to avoid the problem of 'extraterritoriality'. Each country supposedly can maintain its own approach to banking legislation as long as it permits the opportunity for foreign banks to compete on a fair basis.

National treatment compared to reciprocity

National treatment is not the only approach the US authorities could have chosen at the time of the International Banking Act. Mutual reciprocity appears also to offer the same advantages of fairness and even-handedness. Each of two countries would agree to extend to the other's banks the same powers that the other country extended to its banks.

Mutual reciprocity would involve many more practical difficulties than national treatment. Each pair of countries would have to develop a set of powers, which they could mutually agree to extend to each other's banks. Moreover, it is not obvious that Country A would agree upon the same list of reciprocal powers with Country B as it would with Country C. National treatment, literally applied, reduces the need for the detailed bilateral bargaining that would be required for mutual reciprocity.

National treatment and mutual reciprocity also differ in theory with respect to their implications for the national system of bank

regulation. If the two banking systems are relatively similar, the extension of powers to foreign banks in each case could be achieved within the context of existing regulation. In contrast, with two diverse banking systems, the application of mutual reciprocity would likely lead to foreign banks having different powers than purely domestic banks. It would be difficult to imagine any country extending greater powers intentionally to foreign banks than to domestic banks.²⁴ Rather reciprocity for banks would in these circumstances appear to be dictated by the provisions of the most stringent banking law. In this case, any country would need to have a variety of rules applying to the banks within its jurisdiction. The most liberal powers would be extended to indigenous banks, with differentiated powers being given to foreign banks according to their nationality.

National treatment in practice: a case study

The application of the principle of national treatment to Canadian/US banking questions provides an informative case study of the effectiveness of the concept as a device for extending international competition in banking services. The Canadian/US case tests the usefulness of the concept under quite difficult conditions. Despite the closeness and general openness of the two economies, they have chosen distinctly different approaches to the regulation of banking. In Canada, the jurisdiction for banking is centred solely on the federal government whereas in the United States this jurisdiction is divided between the federal and state governments. Moreover, each country approaches banking regulation in a different way. As has been already shown, Canada historically has restricted entry into banking but, at the same time, has applied a relatively laissez-faire approach to existing banks. The United States, in contrast, has permitted easier entry but has maintained a greater degree of oversight and supervision for operating banks. This case study provides an opportunity to determine whether the national treatment approach can accommodate these differences in reaching a fair treatment of foreign banks.

The approach to be followed in this assessment involves an evaluation of particular features of the Canadian and US systems of

bank regulation with respect to the degree to which they either do or could serve as obstacles to national treatment. The only feature of the US system to be considered is the division of powers among federal and state authorities. In contrast, three features of the Canadian system will be assessed: the ceiling to total foreign bank assets; the 25 per cent limit to foreign ownership; and the 'rules' approach to regulation. It will be argued that, although the ceiling to total activity of foreign banks and the limit to foreign ownership appear to be the major obstacles to the achievement of national treatment, their elimination would still leave the Canadian system of regulation fundamentally incompatible with national treatment.

Division of powers

Canada and the United States differ markedly regarding the division of powers with respect to banking. In Canada, federal legislation governs banking throughout the country whereas in the United States, federal legislation interacts with state legislation in each of the states. Does this difference in approach to legislation affect the applicability of national treatment to the banking activities between the two countries?

The division of powers among jurisdictions makes the concept of national treatment ambiguous in a very fundamental way. In an obvious sense, no single definition of national treatment emerges where there are several jurisdictions. A very weak definition would imply that the federal legislation accords national treatment to foreign banks in all the respects to which it applies. Yet by such a definition, national treatment would be an empty gesture should, for example, a majority of state regulators choose to discriminate against foreign banks. A stronger definition of national treatment would require that both federal and state jurisdictions accord equal treatment to domestic and foreign banks in their jurisdiction.

While the United States fares well with respect to the narrow definition of national treatment, it fares less well with respect to the broader definition. As of mid 1984, some thirty-three states maintain explicit prohibitions against foreign banks, though with the exception of Texas these states are not generally of interest to foreign banks.

The problem of divided jurisdiction thus shows up one of the limitations of the concept of national treatment. It is a concept designed for nation-to-nation bargaining with respect to the terms for foreign bank entry. Implicit in the concept is that the national authorities have full jurisdiction over banking regulation. The concept loses some of its appeal when it is applied to any nation in which subnational governmental units have jurisdiction over banking.²⁵ Fortunately, in most countries – the United States as the prime exception – the jurisdiction for regulation of commercial banking rests with the federal authorities. The problem may also arise in a different form with respect to countries in which the functions traditionally identified with commercial banking are split up among a variety of institutions. In these cases, some activities may be under federal jurisdiction whereas others may not.

The ceiling to assets of foreign banks

The current 16 per cent ceiling to the share of foreign banks in the Canadian system appears initially to be one of the more serious obstacles to achieving the standard of national treatment. While the ceiling certainly symbolizes the differential treatment of the foreign banks in Canada, it is not the sole obstacle, as will be demonstrated below. Moreover it does not appear to be even an essential element of Canadian banking policy. Prior to the adjustment to the ceiling in June 1984, the Finance Committee of the House of Commons called for its complete elimination.²⁶

The ceiling to foreign ownership of Schedule A banks

The 25 per cent ceiling to the foreign ownership of any bank wishing to qualify as a Schedule A bank, like the asset ceiling, appears to be a major obstacle to equal treatment of foreign banks. Yet its elimination without any other changes would change only the apparent treatment of foreign banks but would not alter effectively their status at all. Each of the foreign banks operating in Canada is the fully owned subsidiary of a foreign bank and as a result would still be unable to qualify as a Schedule A bank because of the constraint on concentrated ownership through the 10 per cent limit to shareholding by any common interest. While, under these circumstances, a bank

that is fully foreign owned could technically qualify as a Schedule A bank if its ownership were spread among at least ten separate interests, it is unlikely that this approach to entry into Canadian banking would have any appeal. Multinational banking is generally explained as a device to gain advantage from specialized skills or knowledge of parent banks.²⁷ Any form of organization required to qualify for a Schedule A bank would lead to benefits from these advantages being shared with the other interests.

The Canadian approach to regulation

The Canadian approach to banking regulation, at least up to 1980, could be characterized as a system of regulation by rule with minimum discretionary intervention in the conduct of banking.²⁸ It is important to recognize that such a system could be successful only if accompanied by a number of other factors to ensure that the banks function prudently. Historically in Canada, the device chosen to achieve this end was an extremely selective approach to entry intended to ensure that only 'solid' enterprises were permitted to participate in banking. Subsequently, this approach was supplemented by the 10 per cent limit to ownership by any interest, which was intended to make it more difficult for any party to 'capture' a bank and use it for its own purposes at the expense of depositors. These elements, it could be argued, comprise a consistent and, by experience, an effective means of prudential regulation.^{29,30}

Canadian authorities face a dilemma in their policy towards foreign banks between maintaining their long-standing approach to regulation and the need to conform to the national treatment approach. Treatment of foreign banks on the same basis as Schedule A has the potential to jeopardize the system of regulation that has been built up over the years. Some foreign banks entrants would come from countries where many of the prudential rules integral to the Canadian system are absent or, at least, weaker. For example, few other countries prohibit the sole ownership of banks. In cases when substantially different standards of regulation are applied to banks, even the required 'letter of comfort' from the bank's parent may be inadequate reassurance for the Canadian authorities.

A strict interpretation would appear to make the Canadian differentiation in the treatment of Schedule A and Schedule B banks incompatible with national treatment. Indeed, it could be argued that both the creation of the Schedule B category and the explicit provision for discretionary changes to regulations were directed primarily at providing a basis for foreign entry in a manner that would not jeopardize the existing approach to regulation. Some support for this view is given by the evidence that the discretionary approach has been directed primarily, though not solely, at the Schedule B banks.

The other alternative open to the Canadian authorities would require them to alter the treatment of domestic banks so as to make it consistent with the present treatment of Schedule B banks. As should be clear, such a step would require a complete reversal of the philosophy of Canadian banking regulation. Rules would be supplanted by discretion. If the Canadian authorities followed this approach, it would mean that the strict application of national treatment has resulted in a loss of control by domestic authorities over the types of rules and regulations governing its banks.

CONCLUSIONS

The justification for national treatment is the fair treatment of US banking interests in foreign countries. Assistant Secretary Leland spoke, unabashedly and legitimately, of national treatment as a plan 'to support US banks and financial firms' interests overseas'.³¹ The continued acceptability and success of the national treatment approach will in large measure depend on its perceived contribution to the success of the international operations of US banks in foreign markets.

As already seen, it seems quite possible that by a valid interpretation of national treatment, the Canadian authorities can quite consistently maintain the essentials of the status quo. They would have to eliminate only the limitation on foreign ownership. As the two discussion papers demonstrate, such an outcome would be unacceptable to the US banks with established subsidiaries in Canada. To them, fairness means more than having the same powers as Schedule B banks and being subject to the accompanying discretionary approach to regulation. Their goal is no less than the

ability to operate under the rules approach applied to the Schedule A banks. The national treatment approach will be acceptable to US banks only as long as it supplies progress towards this goal and will likely be supplanted when it cannot.

The treatment of foreign banks operating in Canada has been and will likely continue to be a source of friction between the United States and Canada. The movement from an 8 per cent to 16 per cent ceiling on foreign bank activity appears to have alleviated the proximate cause of the friction for the present. Moreover, the adoption by the United States of a national treatment approach to negotiations over powers of foreign banks has been acclaimed as a workable formula to achieve mutual agreement. In the face of these developments, can the current calm be projected far into the future or is it merely a transitory pause reflecting the glow of recent successes?

The analysis suggests the latter interpretation to be more likely for three reasons. Least of all, Canada will in all likelihood maintain its foreign ownership limitations rather than symbolically adopt national treatment. But, even if Canada did drop its foreign ownership limitation and became, at least arguably, consistent with national treatment, it would not alter the effective status of foreign banks. Other features of Canadian banking regulation would constrain their operations.³² Finally, national treatment will promise much more to foreign banks about their prospects in Canada than they are likely to receive. Inevitably, their view of fairness will lead them to expect more than the Canadian authorities will, or need, give them to be consistent with an interpretation of national treatment. It is the case of an irresistible force meeting an immovable object – the pressures for multinational banking against the Canadian approach to regulation.

NOTES

- 1 United States Senate Banking, Housing and Urban Affairs Committee (1984).
- 2 *The Globe and Mail*, 27 September 1984, 'Regan not supporting US bank legislation', B 8.
- 3 See, for example, *Annual Report of the Canadian Bank of Commerce*, 1982, which states 'expansion in the U.S. continues to be a major thrust (10)'; and 1983 which reiterates 'our

international activities – especially those in the United States – remain important to our overall planning and progress (15)’.

- 4 Interestingly one potential challenge occurred within the past year. A chartered bank wished to advertise its so-called Green Line service by which it made the services of an independent discount broker available through its branches. The Ontario Securities Commission questioned this practice. In doing so the commission claimed to be exercising its authority over the operations of securities markets. Although the Commission eventually approved the Green Line service, it seems almost certain that any decision to disapprove would have been met by a challenge to the commission’s authority over the federally chartered banks.
- 5 The dual system of regulation in the United States is analysed by Kenneth E. Scott (1979) 1-58.
- 6 Indeed the raising of the 8 per cent ceiling on foreign bank activity is the most notable instance of change between scheduled renewals of the Bank Act.
- 7 The following data are from K. Buckley and M.C. Urquhart (1965) cited in Bond and Shearer (1972).
- 8 During this same period, thirty-three chartered banks disappeared through mergers and twenty-eight banks failed. The total number of banks dropped from thirty-five to eleven.
- 9 Canada, *Banks and Banking Law Revision Act*, 1980, 267.
- 10 Canada, House of Commons, Standing Committee on Finance, Trade and Economic Affairs (1982), 31.
- 11 Emphasis added.
- 12 *Canada, Banks and Banking Law Revision Act*, 1980, 326.
- 13 The other three were British owned and included the original Bank of British Columbia (absorbed by the Canadian Bank of Commerce in 1900), the Bank of British North America (absorbed by the Bank of Montreal in 1918), and Barclays Bank (absorbed by the Imperial Bank in 1953). The Mercantile Bank and Barclays Bank are each significant in that they were the only foreign-owned banks chartered between Confederation and the 1980 Bank Act.
- 14 Canada, Royal Commission on Banking and Finance (1964) 374. Hereafter referred to as *Porter Report*.

- 15 The Bank Act was scheduled for renewal in 1977 but was extended several times on a short-term basis. The revised Bank Act was not proclaimed until 1980.
- 16 Admittedly, under the Economic Council proposal, the new category would come into effect only after 10 years. Still, incorporation of the category into the act, or even a statement of intent, might have served to encourage foreign banks.
- 17 The submissions differ in title. The first, dated April 1981 is entitled *White Paper on the Treatment of US Banks in Canada* while the latter, dated February 1983, is entitled *Status Report: The Treatment of Foreign Banks in Canada*.
- 18 Some but not all of these restrictions apply to those Schedule B banks that are domestically owned.
- 19 *White Paper on the Treatment of US Banks in Canada*, 2.
- 20 As my discussant, Lloyd Atkinson notes, Schedule A banks are also subject to some discretionary measures that do not apply to Schedule B banks. These restrictions are less relevant than the others for the present purpose, which is to outline ways in which foreign banks could argue that their treatment falls short of the standard of national treatment.
- 21 *Status Report: The Treatment of Foreign Banks in Canada*, 1.
- 22 *Status Report: The Treatment of Foreign Banks in Canada*, 4.
- 23 Statement of the Honourable Marc E. Lalonde. Assistant Secretary of the Treasury for International Affairs before the Senate Banking Committee on International Finance and Monetary Policy, 9 November 1981, 6.
- 24 Some claim that foreign banks in the United States have been given greater powers than domestic banks in that they can acquire a bank without raising questions either about the state of competition in some circumstances or about interstate operations.
- 25 This point appears to have been recognized by the Swiss. In the past, they have threatened to confine the operations of US banks to only one canton.
- 26 Canada, House of Commons, Standing Committee on Finance, Trade and Economic Affairs (1983) 30.
- 27 See Richard Caves, 'Discussion' in Federal Reserve Bank of Boston, *Key Issues in International Banking*, Conference Series no. 18, 87-90.

- 28 Considerable intervention did occur through moral suasion by the Bank of Canada for monetary policy reasons. For present purposes, regulation of banking is considered separate from the achievement of credit targets, whether aggregate or sectoral. For a discussion of the use of moral suasion, see Keith Acheson and John Chant (1972) *Journal of Money, Credit and Banking* (Spring) 13-33.
- 29 The last bank failure in Canada occurred in 1923. It has been suggested that some bank mergers since that time have been arranged by banking authorities in face of imminent failure.
- 30 This statement leaves open the question of the costs of the system in terms of a lack of competition. The present purpose is not to assess the desirability of the system but rather to identify its qualities.
- 31 Statement of the Honourable Marc E. Lalonde, 1.
- 32 At the same time as recommending the removal of the 8 per cent ceiling, the Standing Committee on Finance, Trade and Economic Affairs also recommended in *Report* (1983) (31):

That the Governor-in-Council and the Minister of Finance through the Inspector General of banks continue to exercise control over the future entry into Canada by Foreign Institutions, branching within Canada by Foreign Bank subsidiaries and the domestic asset growth of Foreign Bank subsidiaries in Canada on the basis of the following guiding principles:

- Reciprocity vis-à-vis the home country of the Foreign Bank subsidiary ('treatment as favourable');
- The degree to which the Foreign Bank subsidiary can or does contribute to competitive banking in Canada;
- Solvency of the Foreign Bank parent and its Canadian subsidiary.

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Comments

C.R. Neu

The Rand Corporation

John Chant has done an admirable job in laying out the differences between the US and Canadian approaches to banking regulation and in explaining how these differences will impede efforts by each country to extend national treatment to the banks of the other. The clear conclusion to be drawn from Chant's paper is that significant expansion of cross-border banking will come only if the United States drops its rigid insistence on national treatment or if Canada changes its basic approach to bank regulation. Neither route to freer trade in banking services will be easy. Both US demands for national treatment and the traditions of Canadian bank regulation have deep roots, and changes will come only at a considerable political and diplomatic price.

As I thought about this, I began to wonder if the game is really worth the candle. What, after all, is to be gained from freer trade in banking services between the United States and Canada, or between any two countries for that matter?

Our reflex response of course is that freer trade will bring overall welfare gains. In the case of banking, however, I'm not sure that this is really the case. In every country, banks are subject to some restrictions. We may argue about appropriate restrictions, but few of us doubt the need for some form of bank regulation. The economy at large has an important stake in the smooth operation of the banking system, and therefore the economy at large has a legitimate interest in maintaining the banking system - hence, a variety of restrictions on

The views expressed in these comments are those of the author. They do not necessarily reflect the views of The Rand Corporation.

and special privileges for banks. We do not subscribe to a completely free-market approach to domestic banking. Should we do so internationally?

I have been struck by the shortage of clear thought (or at least clear writing) on this subject. The recent debates on banking deregulation in the United States have been noteworthy for their lack of content. This is all the more puzzling because recent troubles within the US banking industry have raised awkward questions about the quality of bank management and bank regulation and about the appropriate degree of freedom for banks. Even more to the point, the hottest issue in the area of US banking policy at the moment is under what terms interstate banking should be allowed. This seems to me to be very similar to asking under what terms cross-border banking – freer trade in banking services – is to be allowed or sought. When does it make sense to restrict the geographic scope of bank operations?

I don't have the answer. I will try, however, to raise a few points that I hope will provoke some further thinking on the subject.

There are traditionally two sorts of gains that arise from freer international trade:

- 1 Increased opportunities for trade can prompt fiercer competition within the trading nations and can lead to more efficient use of resources.
- 2 Each country gains by specializing in the production of those goods and services for which it enjoys a comparative advantage.

How do these two kinds of gains arise from trade in banking services? In particular, how might Canada and the United States gain from increased opportunities for cross-border banking?

First note that there is little to be gained on either score with regard to the provision of banking services to large and financially sophisticated customers. Large corporations, financial market players, and institutional investors already have access to the services of almost any bank in the world. Increases in cross-border banking will do little for them. If gains are to be made, it will be in the provision of services to retail depositors, small-and medium-sized firms, those seeking personal credit, and so on.

Will these customers benefit from increased competition? Possibly. The Canadian banking industry is dominated by five very large

banks, and in some states in the United States regulations against interstate (and sometimes even intrastate) branching may constrain consumer choice. Perhaps the entry of new banks into these markets will produce more effective competition. But it is hard to get very excited over these gains. In both the United States and Canada, competition among existing banks seems to be quite keen, and it is hard to argue that we have not seen a good deal of innovation in the banking industry recently. Of course much more study would be necessary to establish that a few new bankers in the neighbourhood would not add much to the services enjoyed by smaller scale customers, but I don't really expect that this would be the case.

What about comparative advantage? Are banks in one country able somehow to produce banking services more efficiently than banks in the other? (I realize that I'm fudging a bit here, speaking of absolute rather than strictly comparative advantage. For these informal purposes though, I doubt that we will be led too far astray.)

Is expertise in particular markets or operational sophistication greater in one country than the other? I doubt it. Personnel and techniques move easily across the Canadian/US border, and the major banks in both countries are quite large enough to enjoy the latest in technology. It is hard to imagine that there are lasting differences in this regard. Indeed, if there are differences in expertise, I suspect these favour local banks handling local business because these banks will have a better understanding of local conditions. Opening up borders will not get us very much in this regard.

There is, though, a more likely source of comparative advantage – one more closely related to our classical ideas about comparative advantage arising from differing factor endowments. An important factor in the production of banking services is confidence, and national banking systems clearly differ in the amount of confidence they inspire. If one country's banks are seen as safer than another's – perhaps because they are overseen by authorities perceived to be particularly wise, careful, or strong – these banks will be able to raise funds more cheaply and thus lend more cheaply. These banks will also attract deposits more easily. They will provide their services at a finer spread than will banks less favourably situated. They will enjoy a true advantage, and foreigners would benefit by having access to such banks.

One would, of course, have to do this calculus of safety with due attention to other aspects of regulation in the two countries. For example, a lower reserve requirement would permit finer spreads but would also presumably increase the risks faced by banks. Whether these increased risks were compensated for by the finer spreads would have to be determined by the market. An exogenous increase in the stature of regulatory authorities would unambiguously improve the competitive position of a country's banks.

I will not presume to guess whether US or Canadian banks are today the safer. Recent events may give us all pause on this score. I will let you decide that for yourselves. The point here is simple, though. If the two countries have differing endowments of the factors that are required for efficient banking – and confidence in the banking system is clearly one of these factors – then there may be significant gains from trade.

Now here is the catch. The very act of offering banking services across a border may erode these advantages. Moreover, cross-border banking may erode the safety of the global banking system or – depending on the details of foreign bank regulation – the safety of either the host or the parent national banking system. Because of close government involvement in guaranteeing the safety of banks, these changes in safety may not be fully valued by the market. Some cross-border moves may appear profitable to individual banks but have the ultimate effect of placing a larger burden on national authorities who guarantee the soundness of banks. The result may be a hidden loss in total welfare.

I don't have the time in these short remarks to describe all the mechanisms at work here. (Nor, if truth be told, do I have the wit to explain all of those mechanisms clearly.) Rather than being complete, I will try to be provocative, pointing out some of the more straightforward elements of my argument.

First, let me dispose of the usual banker's rationale for allowing banks a broader scope of operation. By allowing banks to broaden their field of activity, either by allowing them to enter new lines of business or to extend operations geographically, some have argued, we allow banks to diversify their business and thereby reduce their risks. This argument makes sense only if the quality of bank management and bank oversight is independent of or positively correlated with the scope of banking activity. I think it would not be

too uncharitable to view recent events as casting some doubt on these propositions. The diversification of bank portfolios away from purely domestic lending towards international lending during the past ten years hardly seems to have reduced the riskiness of major banks. Neither did it make them noticeably better able to stay right way up when their energy and agricultural loans went bad. The incentives for management of big banks has been to grow – often without taking full account of the risks thus incurred. These same incentives are likely to encourage rapid expansion into newly opened areas even if the necessary expertise for prudent operation in these areas is lacking. Similarly, we must wonder whether oversight procedures can keep up with the expansion of banking services into new areas, particularly new foreign areas. I rather doubt that a convincing case can be made that cross-border operations will increase bank safety.

But suppose that we decide to allow cross-border banking anyway. How should we arrange matters to make the most of potential gains from trade?

Perhaps the most appealing approach is also the simplest: simply allow foreign banks to open branches. The activities of these branches are integral parts of the total operations of the parent bank, and as such they are backed by the full capital and reserves of the parent bank. (Further, it is my understanding of the concordat among major central banks that the central bank of the parent bank's country will stand behind the operations of that bank's foreign branches.) If there are indeed differences in national endowments of confidence, this would seem to be the most direct way to carry this endowment across national boundaries and thus to improve general welfare. But is this confidence exportable? The willingness of parent banks and central banks to make whole depositors in their foreign branches has not (fortunately) been clearly tested. Further, even with all the confidence in the world, Canadians, for example, might reasonably feel a little uncomfortable knowing that in the event of trouble they would have to deal with a largely unknown guarantor through the mediation of a largely unknown legal system.

Perhaps more to the point, some national authorities – and Canadian authorities in particular – have shown some reluctance to having branches of foreign banks operate on their soil. Canadian authorities insist instead that foreign banks establish Canadian subsidiaries. This has advantages. It allows a clearer determination

of the question: which of an international bank's activities are of concern to Canadian authorities and which are not. It insulates the Canadian banking system somewhat from the effects of unsound decisions by banking executives in other countries – decisions over which Canadian authorities have no control. It may also allow Canadian monetary authorities a somewhat firmer platform from which to exercise moral suasion for the execution of monetary policy.

But the drawback of this approach is that it prohibits the transfer across the border of the factor that is most likely to give rise to a trade-related welfare gain – that is, confidence in the foreign parent bank. The whole point of insisting on a subsidiary rather than a branch is to insulate somewhat the Canadian banking system from possible troubles that may arise in a US bank. But you can't have it both ways: to insulate yourself from troubles is to insulate yourself from strengths as well. This was clearly demonstrated when the Canadian operations of US banks were converted into Schedule B chartered banks: losing the right to issue commercial paper with parental guarantees, these newly chartered banks had only their own capital to fall back on and found themselves paying higher rates for their funding. Where in this arrangement are the gains from trade? A cynic might comment that Canada got the worst of all possible deals – a new set of institutions run by US managers, who may or may not know much about the realities of Canadian business, without recourse to the large capital bases that normally back up the actions of this management.

But maybe this view is too narrow. If we have learned anything in the last couple of years, it is that it does not always make sense to talk of the banking system in any country as distinct from the banking systems of other countries. One wonders what sorts of international distress might have followed a decision by US authorities not to guarantee the large deposits by foreign banks in Continental Illinois. The failure of a rather small bank in Oklahoma could have produced serious consequences for some large foreign banks. Is more cross-border banking good for the global banking system?

There is no international bank regulator. As bank operations sprawl across the globe, who can encourage prudent behaviour? The only possible answer seems to be the market. Before the Continental affair, US regulators had announced what seemed to be a rather appealing policy. They clearly stated their intention to limit deposit

insurance to the prescribed \$100,000 US per depositor per bank. Depositors of larger amounts were presumed to have the resources to form their own opinions about the prudence of banks' operations. By placing these larger depositors at risk, the authorities hoped that depositors would seek out banks that followed prudent financial strategies. Banks with suspect loan portfolios or not entirely reliable funding strategies would, it was hoped, find themselves paying more for their deposits and thus have an incentive to pull up their socks.

For a policy like this to work, large depositors have to believe that they really could lose their money. The catch was that Continental was just too big to be allowed to fail. I do not mean to suggest that US authorities did the wrong thing in the Continental case; they probably had no other choice. (At least at the time they thought they had no other choice.) But once they had guaranteed all deposits, the previously announced policy was seen to have been a bluff.

What this suggests to me is that if we are trying to design the global banking system of tomorrow, we ought to be trying to produce institutions that are big enough to capture the substantial economies of scale that mark the banking business, but not so large that they can't fail from time to time. Continental was thought to be too big to fail, and there are plenty of banks bigger than Continental was. If we are going to have to rely on the market to encourage prudent banking behaviour in the future (and where else do we have to turn?), we might want to consider how to reduce the size of some of these larger banks or at least how to slow their growth enough to let growth of the world financial system reduce their relative size.

What does all this have to do with cross-border banking? My guess is that one result of freer cross-border banking would be an increasing concentration of world banking services. Only large banks would have the resources to make the jump into a new market, and they would be most likely to take their share of the market from smaller banks. Freer trade in banking services would likely produce bigger large banks controlling more of the total market – larger banks whose failure is less likely to be possible. Restrictions on the geographic spread of banks may not be the ideal way to control their size, but it is a natural and politically feasible way to slow their growth. One already hears quiet speculation about the outcome of the Continental affair had interstate banking been allowed during the years when

Continental's urge to expand (damn the torpedoes!) was at its strongest.

That's as much as I mean to say. I seem to have asked more questions than I have offered answers. I fear I may have sounded anti-free trade, which I certainly am not. We have for a long time, though, recognized that banking is not just another domestic industry. We have to consider also that the general approaches to international trade may not be appropriate for banking. I would like to see the debate over banking policy carried on less by 'men of affairs' and more by economists. It might be that by thinking harder about the place of banking in international trade, we may develop a clearer idea of banking's role in the domestic economy.

Comments

Lloyd C. Atkinson

Bank of Montreal

In large measure, John Chant has captured the flavour of the issues involved in the debate over foreign banking in Canada, and the 'national treatment' criterion employed in the United States. However, I think his case could have been made stronger – or weaker – if he had devoted greater attention to Canadian-owned Schedule B banks versus foreign-owned Schedule B banks. The critical issue here is the 10 per cent ownership rule for any single entity: whatever the merits of this provision, it was established to help ensure the safety and solvency of Canadian banks. In any event, it has been alleged that it is not the rule of the inspector general to establish an asset ceiling for Canadian-owned Schedule Bs. Moreover, it is also often alleged that the foreign-owned banks are subject to more surveillance than Canadian-owned Schedule Bs. On balance, therefore, this would weaken – but only marginally – Chant's case, as I will highlight below.

Second, I think Chant should have exercised a bit more care in spelling out the limits on the Schedule B banks, carefully delineating those areas where the restrictions are effective. For example, although it is true that approval is required to open up branches – a requirement not imposed on the Schedule As – it is not apparent that the inspector general has in fact been anything but accommodative of requests. In light of the expansion of the asset ceiling to 16 per cent, one can only anticipate that the inspector general will be quite forthcoming. In addition, Chant lists as a restriction the prohibition of the sale of assets by foreign banks to their parents. Basically, this is nothing other than a restriction designed to ensure that foreign banks

maintain their subsidiary status; if the sale of assets to their parent banks were permitted, they would, at least in this respect, enjoy essentially branch status. Moreover, despite the asset restriction of 20 times capital applied by the inspector general to Schedule B banks versus 30 times for the Schedule As, it has become apparent through practice that there is less and less of a difference: the Bs seem to be monitored in the range 20 to 25 per cent whereas the As have a range of 20 to 30 per cent, with the inspector general casting a watchful eye at the As who are closer to 30 per cent.

Third, with regard to the issue of national treatment, Chant failed to deal with one critical issue – at least an issue that is important to the Schedule As; namely, the existence of an extensive, and at times, not particularly cost-effective, branch network. The problem is this: the divesting of inefficient branches is often met with considerable opposition from politicians, consumer activists and the public at large, particularly in small communities with limited banking services. It is a bit of an overstatement – but not completely – to say that to do business as a big Schedule A, a bank must subsidize its branch network out of its other bank activities. Being new to the scene, the Bs are under no such pressure, which in some markets puts them at an advantage vis-à-vis the As.

Finally, there are some other important issues that need assessment in a national treatment context.

1 Section 208(3) of the Bank Act permits two banks to enter into an agreement in which one bank may maintain Canadian currency deposits in a reserve account with the other bank in lieu of any deposits that the other bank would otherwise be required to maintain with the Bank of Canada. In practice, the Bank of Canada would not give approval for such an arrangement to the large Schedule As. Schedule Bs, however, do have that option, which gives them some advantages: by law, Bs that maintain reserve accounts with As are required to meet minimum reserve requirements on an average once a month instead of twice a month for the As; this gives them more flexibility in managing their reserves and allows them greater scope to take advantage of interest-rate changes over the period.

2 When deficiencies appear in reserve accounts, Schedule A banks are forced to take an advance from the Bank of Canada. Schedule B banks have an alternative: same-day funds (that is, pre-dated loans)

from the Schedule A banks with which they maintain reserve accounts. If Bs exercise this option, they avoid the rules governing the use of central bank credit and the moral suasion stigma of reliance on Bank of Canada advances. While, technically, the As could require the Bs to seek central bank advances, the central bank actually discourages such actions, preferring to restrict use of advances to a limited number of banks; in fact, the As were asked to accommodate the Bs. This is important for another reason: lines of credit to Bs by As to cover reserve deficiencies are greater than the lines of credit that would be granted by the Bank of Canada on its formula basis. As the Bs are largely wholesale banks, their settlement accounts are subject to substantial swings. If they maintained reserve accounts at the Bank of Canada, they would have to hold larger balances of noninterest bearing balances to protect against these large clearing swings.

3 The Schedule Bs do not hold receiver-general balances and thus are not subject to the daily drawdown and redeposit of these balances. Accordingly, the Bs enjoy a higher degree of control over their reserve balances relative to the As.

4 As part of their reserve requirements, all chartered banks are required to hold reserves of 3 per cent of Canadian residents' foreign currency deposits booked in Canada. Foreign currency deposits of nonresidents and those booked outside of Canada are reserve free. Some years ago, the Schedule As were instructed to limit the extent of foreign currency liabilities used to fund domestic assets – which most of the banks have interpreted as meaning they must match foreign currency liabilities to foreign currency assets. However, the Schedule Bs are allowed to fund up to 50 per cent of their Canadian dollar assets with foreign currency liabilities; being reserve free, this implies lower cost funding of their Canadian book.

To sum up, the issue of national treatment is actually much more complicated than has been detailed by Chant. In fact, what constitutes national treatment and how one assesses if that criterion has been satisfied on a reciprocal basis is not at all clear cut.

Trade in communications and data processing

Peter F. Cowhey

University of California, San Diego

Jonathan D. Aronson

University of Southern California, Los Angeles

When the United States deregulated its telecommunications market, it unilaterally changed the rules of competition for the rest of the world in both the telecommunications and computer industries. The United States remains the largest and most technologically advanced supplier and user of these two rapidly emerging industries, but the new policy effectively opened up the US market to more foreign competition. In addition it significantly lowered the costs and increased the opportunities for larger US users of communications and information. These changes have prompted both users and suppliers of telecommunications and computer equipment and services outside of the United States to reconsider their own strategic interests. In particular, they are reassessing the advantages and drawbacks of their own countries' policies. This is especially true in Canada, the closest industrial neighbour of the United States. This paper analyses changes in Canadian policy and how Canadian/US trade in telecommunications and computer services influences these shifts.

The politics and economics of modern telecommunications flow from the changing relationships among the players involved. For analytic purposes this paper distinguishes three market segments. The first segment consists of suppliers of telecommunications and computer equipment, which provide everything from optical cable and PBX switchboards to the computers attached to the phone lines. The second segment provides traditional telecommunications services such as voice and telex, which allow users to transmit information

among themselves. The third segment, which began to emerge during the 1960s, provides value-added services such as videotex and facsimile services. This segment is smaller than the others but is expanding rapidly as new services are introduced. It allows for the processing of telecommunications messages that make transmission cheaper and more reliable and also makes available a menu of services ranging from complete data processing to specialized data bases and voice-message-forwarding systems. In US and Canadian parlance, these are the equipment, basic services, and enhanced services segments of the telecommunications market.¹

The linkages among the three segments are such that no amount of deregulation can prevent negotiated agreements (such as ones by government or companies on how to manage the everyday business of telecommunications networks) from altering competitive advantages significantly. Even after the break up of American Telephone and Telegraph (AT&T), private parties and government authorities in the United States continue to negotiate ways to set regulations for technical standards and 'network rules.'² Network rules govern who can build networks, the services networks can provide, and the prices that they can charge.

It is especially important that changing technology permits enhanced services to encroach increasingly on the basic services. For example, traditional phone calls can be 'enhanced' through such services as voice message forwarding. Once regulators permit the enhancement of voice, it puts the providers of basic network services at risk unless they can respond by offering enhancement on competitive terms.

Rules governing the pricing and access to network facilities also can influence equipment advantages. Computer services provides an obvious example. To the extent that users have unlimited, nondiscriminatory access to computer services, it places pressure on national equipment suppliers either to be competitive in cost or to watch computer processing (and therefore equipment decisions) slip beyond their grasp to other countries.

In short, it appears that network rules skew competitive advantages. This is becoming inevitable as the boundaries separating the segments of the telecommunications market erode. More and more, players in one segment of telecommunications face competition originating from previously separate segments of the market.

This paper analyses the future of Canadian policy concerning the domestic and international telecommunications market. It argues that the existing trade in computer services between the United States and Canada adds to the pressures for change in Canadian data-processing and telecommunications policies. Trade, then, changes the strategic options of parties interested in altering or preserving existing Canadian policy. It further argues that the Canadian government's policy of partially liberalizing the provision of enhanced services will fundamentally alter competitive conditions in the markets for equipment and basic services.³ It certainly will limit the degree to which the government can expand its protection of equipment makers in Canada. In addition, the policy either will discriminate against the interests of smaller users of both basic and enhanced telecommunications services or it will eventually produce further deregulation of the market.

In order to understand how governments will respond to these changes we develop a model of regulatory politics in an environment where one party (Canada) has to choose a response to a radical switch in policy by a party with stronger economic resources (the United States). The next section develops the model and the following three sections apply it to Canadian policy concerning the major market segments.

A MODEL OF THE REGULATORY PROCESS

Assumptions

We employ a highly simplified model of the regulatory process in order to analyse the politics and economics of the Canadian/US market for telecommunications and data-processing services. Contemporary scholarship about regulation argues that policy makers seek political profit by carving out policies that would benefit groups of producers and consumers who are seeking to maximize their economic welfare by obtaining favourable forms of government intervention in the marketplace. In the case of telecommunications the latitude for reshuffling costs and benefits traditionally has been very large because the system uses common facilities to serve many customers and needs. Regulators determine which companies can enter the market and influence the shares of the common costs of supplying the network that are borne by each major class of consumers.

For the purpose of analysing Canada this paper treats the elected politicians and official regulatory authorities as a single group of regulators. The close supervision of regulatory commissions by the cabinet on important issues makes this simplifying assumption plausible.⁴ (Even when regulators have great latitude on an issue, it is frequently because politicians are using regulators to float a trial balloon. Politically unpalatable decisions will be reversed later by politicians who will claim the credit.) Moreover, this analysis treats regulation like any major government policy designed to manipulate prices, competitive entry, and acceptable forms of competitive behaviour. Therefore, as used here, regulation also include elements of trade policy, such as tariffs.

To keep the analysis manageable it is also necessary to make two more critical assumptions. One concerns the political structure of regulatory policy in Canada and the other the policy consequences of a highly integrated North American market.

The first assumption is that the multiple regulatory authorities in the Canadian federal government can be usefully treated as a single entity with a strong incentive to initiate changes in the Canadian market. Moreover, the analysis treats all the other provincial and local authorities governing telecommunications as a single entity that works on behalf of a different mix of political and economic interests than that found championing federal policy; these provincial authorities act primarily as a brake on change. These are deliberate distortions. The Canadian federal government directly regulates Bell Canada, British Columbia (BC) Telephone, CNCP Telecommunications (CNCP), Teleglobe Canada, Telesat Canada, and two smaller phone companies. The authority over these operations is divided primarily between the Canadian Radio-Television and Telecommunications Commission (the CRTC) and the Department of Communications. The ten other telephone/telecommunications companies are provincially regulated (three are provincially owned) while the city of Edmonton, Alberta, is served by a municipally-owned and regulated phone company.⁵

The federal jurisdiction encompasses the bulk of the telephones and most of the lucrative routes for long-distance and enhanced services. It has been far more receptive to increased competition than the provincial authorities. Therefore, we will treat the other provincial regulatory authorities as representatives of smaller consumers

primarily concerned about holding on to a cross-subsidy to hold rates down for basic services.

The second assumption is that there is so much trading and investment between the markets of Canada and the United States that sharply differing regulatory regimes in the two nations are under constant pressure to become more accommodative.⁶ These pressures are greatest when they impose sharply differing cost structures on companies involved in commerce in both countries. The country with a major cost disadvantage saddles its producers with a major handicap in competition with a major trading partner. This situation is doubly binding on Canada because its firms are much more geared to the export market than their typical US counterparts. The Canadian manufacturers of telecommunications equipment depend on the US market to achieve major economies of scale. Similarly, many of the largest users of Canadian enhanced-data-services maintain extensive operations in the United States and therefore shun the notion of transborder fights over the communications system. Even if Canadian firms attuned to the world market do not like the policy of the United States, they must be careful to avoid provoking a trade war by the US government because access to the US market is critical to their futures. (The same sentiment exists among US firms about Canada, a market about equal in size to California; the imperative, however, is less urgent.)

In each country the response to sharply differing costs imposed by government policies can take one of two forms. One alternative is to force some change in official policy to narrow the gap. The second option is to move production and service functions from one jurisdiction to the other. For example, if phone costs are much higher in Canada than in the United States a firm could try to route its phone traffic through the United States.

In the case of telecommunications, the dominant economy, the United States, has established new rules that unilaterally reduce costs and expand the range of services for all but the smallest users.⁷ US deregulation has impelled Canadian regulators to figure out how to respond. As clearly demonstrated in the airline, trucking, and railroad sectors, deregulation in the United States forces shifts in Canadian policy or a shift in the focus of regulatory activities.

The first measures in response to US deregulation have already emerged. Traditionally, domestic phone services in Canada were

provided by interconnected provincial telephone companies, some owned publicly and others privately. International connections were provided through Telesat (the Canadian satellite communications company that is jointly owned by the federal government and by other phone companies) and by the federally owned Teleglobe Canada, which handles all international telecommunication services except to the United States. However, CNCP Telecommunications, the traditional provider of telex services in Canada, applied in October 1983 for permission to provide long-distance voice services. A ruling is expected in mid 1985. In addition, the Canadian government has announced its intention to privatize Teleglobe despite its profitability. (The government would like to make Teleglobe the plum that would persuade private investors to purchase ownership of unprofitable public companies in order to get Teleglobe.) And in August 1984 it liberalized the terms for competition in enhanced services. The questions at issue are how far these changes will go and what role the trade between the United States and Canada plays in their resolution.

Hypothesis

Regulators may respond to the demands of either buyers or sellers in order to garner political support, build bureaucratic empires, or simply try to advance their image of the public good while attending to the necessity of maintaining political power. In any event, regulators respond most readily to those groups best able to articulate their interests. Regulators respond to the organized because the costs of rallying support and gathering information about the preferences and reasonable demands of constituents are extremely high. (In the parlance of economists, transaction costs are high for regulators.)⁸

However, all interests are not automatically organized in society because of the collective goods problem of 'free riding'. (When an actor cannot be easily excluded from some common benefit, such as tax reform, it is likely to let those who would benefit most from reform pay virtually all of the costs associated with change. In all likelihood reform will fail or be less than optimal because many choose to sit back and not contribute. This is the problem of free riding.) Therefore, it is easier to organize groups where one or several dominant members have so much at stake that they will pay more than their fair share of the cost to procure a benefit that will profit every firm in the sector. This is more frequently true of producers,

especially the biggest ones, than consumers. However, large-scale users may organize when they identify major potential savings from collective action.⁹ Therefore, our first hypothesis is: regulators are most likely to give first priority to groups characterized by considerable financial or voting power and the presence of a few major beneficiaries of regulatory decisions. However, if a regulatory authority oversees an area with few major producers and consumers, it has an incentive to organize the interests of small users and producers commanding many votes.

The profit-maximizing regulator also seeks to contain the damage caused by protests over the costs of the policies, and is quick to spot the declining returns that result from consistently favouring one interest in any market where there are clashing organized interests. To the extent that regulators choose to rig a market on behalf of any one interest, they will most likely do so when the cost to the other side is not obvious (that is, they will lower the apparent costs of a policy for losers by making the adverse effects less visible.) Therefore, our second hypothesis is: regulators try to limit the costs imposed on any one group in a particular time period. Regulation works best (in the political sense) when costs imposed on consumers either do not prevent a slow decline in (the real) price, fall on items of declining importance for the consumer, or limit product and performance options in unobtrusive ways. If it imposes costs on producers, regulation is most successful when it slows down an increase in rents or trades off more competition in one market for protection in another.

If regulators seek to lower their political costs by reducing the apparent burdens imposed by regulation, their freedom to shift cost or competitive advantages in important markets is limited. Too many actors will suffer too much pain if regulators attempt to reverse the effects of technology or other factors in an important market. Therefore, over the long-run regulators pursue a mini-max policy on behalf of those who are most injured and best organized. In short, they seek to limit the maximum loss of those at risk due to declining economic fortunes. Therefore, our third hypothesis is: when dealing with participants well established in the policy process, regulators will try to assure that losses are rolled over and amortized over a longer period of time than an uncontrolled market adjustment would permit.

Taken altogether these three hypotheses paint a world where regulators prefer to deal with stable ground rules and incremental change. Major disruptions in the market evoke behaviour designed to roll over gains and losses more gradually. The politics of regulation is further complicated because producers often have conflicting interests. The next several hypotheses suggest how these conflicting interests may interact. No single hypothesis satisfactorily identifies these divisions. But five propositions are at least heuristically useful.

Our fourth hypothesis pertains to the division between high- and low-cost producers: high-cost producers more often seek protection through regulatory restraints than low-cost producers. (However, low-cost producers also may benefit from protection by collecting rents in the marketplace.) The fifth hypothesis focuses on whether the firm can compete in diverse produce markets within the sector: firms with the size, resources, and expertise to compete in both mature and rapidly growing markets can make different regulatory bargains than firms with narrow product lines.¹⁰ In particular, diversified firms can bargain to open one market to more competition in return for protection in another. For example, before the judicial process forced the restructuring of AT&T, its preferred strategy was to make such trade-offs. Similarly, Bell Canada has insisted that greater competition in some basic network services should allow it freedom to enter new areas, such as its \$450 million Canadian oil-pipeline investment.

Another useful distinction among companies is the extent of their international operations. We suggest that the more international a company's operations, the more it must consider precedents set by a decision in one market for its operations in others. Obviously, this is not a process of simple *stare decisis* because the profit from a 'bad' precedent in one case maybe great enough to offset losses elsewhere. Therefore, the sixth hypothesis is: that global firms should prefer rules that are viable across the universe of countries in which they operate even though they will be imperfect in any specific country. International firms cannot afford to treat each nation as an island, at least when it comes to prominent precedents. (Loopholes obtained by 'shopping' are discussed shortly.)

The divisions among interested parties lead each party to consider which aspects of the regulatory process most favour its interests. It is in this context that the international dimension of the

telecommunications industry and the divided jurisdictional authority about telecommunications in Canada matter greatly. Once Canada and the United States open their networks to some competition, interested parties can shop for the appropriate regulatory forum to advance their particular cause. Shopping is a now familiar phenomenon in the judicial process where the choice of jurisdiction by the filing party is often sensitive to the reputation of different courts. Thus, those taking action against Union Carbide in the aftermath of the Bhopal tragedy in India want to try cases in US rather than Indian courts. (Other examples are numerous. Men drafted during the Vietnam war often arranged to take their physical examination in Cambridge or Oakland because these centres were known to be more likely to grant medical exemptions. Or, again, US banks recently began to switch from the Federal Reserve system to the state regulatory systems on the basis of the size of the required reserve requirement.)

The effect of shopping on policy depends on broad political and economic conditions. Our seventh hypothesis is: if actors can 'exit', partly or completely removing themselves from operating under a given regulator (as with US banks and reserve requirements), regulatory 'outliers' will be driven toward the mean. This suggests that once some telecommunications competition is permitted, the incentive of the major public networks to lobby for strict protection of their remaining advantages declines. If the networks remain inflexible, over time other players will be tempted to exit from the system. On the other hand, some actors, particularly large ones active in both countries, can shop, learning how to use the loopholes in the system to accumulate special advantages.¹¹ Therefore, our eighth hypothesis is: smart 'shoppers' may resist (or be indifferent to) far-reaching reforms that might inordinately benefit those who never learned to use existing loopholes efficiently. Experienced, 'smart' players may oppose reforms that help their competitors substantially more than themselves. In addition, every firm must weigh the projected benefits of major regulatory reform against unknown consequences that will accompany it. Therefore, shoppers should favour general reform only when expected benefits far exceed the value of the basket of second-best exceptions realized by shopping. These reservations about general reform receive reinforcement from

the regulatory authorities who have cultivated higher-cost producers and household users as their clients (see hypotheses one and four).

Finally, it is important to remember that actors respond to marginal costs and benefits. Therefore, our ninth hypothesis is: that actors interested in more than one segment of the market will switch their focus of attention before they reap all the benefits of regulatory politics in any particular segment. They should continuously 'cycle' their attention to the segment currently promising the easiest and largest gains. In subsequent rounds attention will return to the original segment when the gains to be reaped there are again most attractive.

The preceding hypotheses and assumptions suggest the following factors will dominate Canadian policy for telecommunications and data-processing services:

1 Disputes between large users and producers will dominate policy (see hypothesis 1.) The commercial power of each group in the marketplace, however, somewhat tempers the bitterness of the debate. Large users can shop, and major producers can alter their product mix, in ways that reduce the risks imposed by regulation (see hypotheses 5, 7, and 8). Both groups also usually have international operations that make them reluctant to endorse policies that might trigger major conflicts with the United States (see hypothesis 6). It is on these issues, around which provincial authorities can most easily organize the diffuse interests of smaller producers and consumers (or provincial phone systems with fewer attractive options for competing in new services), that political conflict will be greatest and policy change slowest (see hypotheses 1 and 4).

2 Regulators will deal with change by trying a policy of gradualism that allows some groups to stretch out the costs of adjustment while delaying the full benefits of regulatory change for others.¹² In particular, they will try to retain some elements of cross-subsidy by allowing more, but not full, competition on major services (see hypotheses 2 and 3).

3 The linkages among the three segments of the telecommunications and computer markets means that greater competition in any one segment limits the degree of regulatory cross-subsidies imposed on the other (see assumption 2). Conversely, the political pressures to

restrict competition in one segment can limit the degree of competition acceptable in another. The presence of some international trade in telecommunications and data-processing services reinforces these constraints. In the case of the Canadian/US market greater competition in enhanced services was the pivotal change for all segments of the market.

4 Attention to particular issues concerning competition will 'cycle' as major players push for the largest immediate returns on changes in one segment and then switch to seek the next largest profits from new policies in another segment. Therefore, there will be a series of temporary compromises that will be subject to later revisions after more 'profitable' reforms on other issues have been concluded (see hypothesis 9). The ability of major players to shop for loopholes reinforces the tendency to cycle selectively through issues rather than form a coalition for major general reforms (see hypothesis 8).

Keeping these expectations in mind, we now turn to the relationship among the equipment, basic services, and value-added services segments of the telecommunications sector. Then, we examine how the politics of each individual segment has related to the others.

The equipment market and competition

The equipment trade between the United States and Canada is dramatically different for telecommunications and data processing. Canada traditionally runs a large surplus on trade in telecommunications equipment with the United States. This surplus increased in 1984 as newly independent Bell Operating Companies doubled their orders from Northern Telecom in part to diversify away from reliance on AT&T. In addition, Northern Telecom is now the second largest *domestic* telecommunications-equipment manufacturer in the United States with fourteen manufacturing plants and fifteen research and development laboratories in eleven states. However, Northern Telecom has chosen to stay out of the computer market and no other Canadian firm has become a large international player in that market. Therefore, the United States enjoys a balance-of-trade surplus with Canada on computers and related equipment. In 1982 Canada suffered a trade imbalance in computers and office

automation products in excess of \$2 billion Canadian. By 1985 the deficit could reach \$5 billion Canadian.¹³

Although the relative success of Canada and the United States varies according to the market, one constant is a difference in the relative importance of the trade for the two countries. The Canadian market is far less vital to US firms than vice versa. For example, US global exports of telecommunications equipment in 1983 amounted to \$786 million US, and Canada constituted about 10.5 per cent of the total. (Total US production was about \$20 billion US.) US production of computing equipment amounted to about \$41 billion in 1983, of which about \$10.2 billion US was exported. Canada accounted for about 9.5 per cent of foreign sales. It is estimated that in 1984 the total production of telecommunications equipment in Canada was about \$2.3 billion Canadian. In 1982 Canadian exports and imports of such equipment amounted to \$475 million Canadian and \$164 million Canadian respectively. Of these totals about 39 per cent of exports and 50 per cent of imports went to the United States. Likewise, about 85 per cent of Canada's \$1.5 billion Canadian market for data-processing equipment was supplied by US imports and 72 per cent of Canada's \$842 million Canadian of exports went to the United States.¹⁴

The structure of the equipment manufacturers in the two countries further clarifies the competitive picture. Four firms manufacture about 90 per cent of US production of telecommunications equipment (until recently Western Electric alone supplied about two-thirds of the market, although its share is declining in the aftermath of the AT&T breakup). The second-largest supplier is a Canadian company, Northern Telecom, that is 55 per cent owned by Bell Canada (which is not part of AT&T). In 1984 it derived about 62 per cent of its revenues from its US operations. Two others have extensive operations in Canada – International Telephone and Telegraph (ITT) and General Telephone and Electric (GTE). (The latter controls British Columbia's telephone system and a smaller telephone company in Quebec.) Both AT&T and ITT have, or plan, extensive Canadian commitments.¹⁵

The data-processing-equipment market in the United States includes about 1,000 easily identifiable companies. Despite the giant size of International Business Machines (IBM) (about \$17 billion US in computer sales in 1983), concentration in production has been declining for years. The dominant companies are multinational firms

with extensive operations in Canada. (One reason for these investments is the requirement for local manufacturing by suppliers of data-processing equipment to the Canadian government.)

The Canadian industry is also highly concentrated in the production of telecommunications equipment. The dominant firm, Northern Telecom, has about 54 per cent of the market. Mitel, a more recent entry into the telecommunications-equipment field, also expanded rapidly in Canada and the United States, but since 1983 has experienced severe growing pains. (In 1985 British Telecom announced that it would acquire Mitel). Significantly, recent changes in regulatory policy have liberalized competition in the equipment market in areas under federal jurisdiction. The relatively tiny computer-equipment industry is dominated by a few large multinationals and many small Canadian firms. More generally, it is estimated that 72 out of the largest 100 Canadian electronics firms are foreign owned. The United States has by far the largest share of these companies.¹⁶

The politics of the equipment market

In general, the Canadian government restricts competition in the Canadian equipment market more than does the United States.¹⁷ The Canadian tariff on telecommunications products is about double the US level (17.5 per cent versus 8.5 per cent). In both countries the tariff on computer hardware is about 3.5 per cent while peripherals and software are duty free. In both markets the Canadian government has promoted a 'buy Canada' program and in the case of the telephone companies this has largely succeeded.

The Canadian protection of telecommunications equipment is ironic because Canadian producers of telecommunications equipment are usually cost competitive with those in the United States. Northern Telecom, a strong competitor in the United States, benefits from the tariff protection at home, but it would certainly shift its position on protection if this policy threatened its US operations. Moreover, smaller Canadian manufacturers of telecommunications equipment also target the US market and would resist any policy that might damage trade relations with the United States. In addition, both consumers and smaller producers have benefited from decisions to liberalize the domestic equipment market. (Canadian customers in federally regulated service areas have complete freedom in choosing

whose equipment they attach to their phone lines. The same is not true in all of the provinces.) It appears that, although manufacturers welcome the profits from protection when available, the industry would yield if pressed hard by the United States on its tariff protection. The key question is why US producers of telecommunications equipment have not protested Canadian tariffs more vigorously.

The market for computer equipment has another logic. Smaller Canadian firms are higher-cost producers that have narrow product niches. The extensive efforts of the Canadian government to respond to their vigorous lobbying have created an environment where the costs of computing equipment have risen substantially above the levels in the United States. There is no precise authoritative estimate of the differential. A commonly cited figure is that costs in Canada run 40 per cent higher than in the United States. However, this estimate includes the consequences of the greatly weakened exchange rate of the Canadian dollar against the US dollar. (The Canadian dollar was worth roughly 73 cents on the US dollar in September 1985.) A more realistic estimate is a net difference of 5 to 20 per cent.¹⁸

At the same time a growing share of the overhead costs and general strategies for quality- and cost-control for consumers is tied to computerization.¹⁹ Also at risk are the value-added networks that provide computer-processing services for their clients. As a result, major users of computer equipment have an interest in persuading government to change its policies. They helped long ago to shape the government policies that kept nominal tariffs low. Their remaining cost disadvantage is partially offset by lower labour costs than exist in the United States (a result of the wage structure and lack of social security tax), which in turn reduce the effects of high equipment costs. Any temptation for large users to continue a campaign against equipment prices is discouraged because few large producers will support their cause. Therefore, users' attention has turned to the rules governing basic and network services.

The response of the biggest data-processing-equipment makers is highly instructive in light of our model. All of these firms are US-based. They support more competition by arguing that lower tariff barriers would permit their local subsidiaries to become cost-competitive producers of specialized equipment and peripherals for

their parent companies' global operations and sales.²⁰ However, when issues of customs valuations were negotiated, these firms reportedly were very cautious when advocating particular new policies because they suspected they might do better with individual arrangements. Meanwhile, small, low-cost producers exporting from the United States also favour trade-policy reform. But the Canadian market is such a small piece of their business that organizing for effective political action is extremely difficult.

In summary, so far there has been limited conflict only in the telecommunications-equipment market even though US producers seemingly should be dissatisfied. Further explanation is required. The market for data-processing equipment is more contentious. The stakes for large consumers and data-processing networks are sufficiently high to provoke concerned action if government policy imposed new costs. (Costs under the current rules are not optimal, but are not high enough to make a fight worthwhile.) At the same time, more competition would not injure the dominant producers, who support freer trade as being in their best interests. However, they can be induced to strike special individual bargains that diminish their incentives to support general reform. The smallest Canadian computer firms are the most vociferous foes of freer trade and greater competition. The stakes for these firms are very large, so politicians can profit by organizing them. But the group is sufficiently diffuse that organizing it is difficult and its size would make such a group an unruly client. Therefore, we expect the current level of protection to be maintained or to erode very slowly.

Back to basics: the politics of the phone networks

AT&T's divestiture of its twenty-two Bell Operating Companies and its entry into nonvoice-communications markets, from which it was previously barred, was one dramatic fall-out of the deregulatory trend in the United States. To compensate AT&T for spinning off its operating companies and losing its monopoly on international long-distance for voice, it was allowed to venture into the domestic and international record and value-added services business (see hypothesis 5).²¹

On a wider basis, the so-called Computer II decision by the Federal Communication Commission (FCC) set up a distinction between basic (voice and record) services and enhanced, value-added services.

Regulation of basic services was maintained. But, given the blurring of lines between computer and communication services, the FCC opted for complete deregulation of the domestic and international provision of enhanced services.²²

The petition for more competition

As noted earlier, in terms of formal jurisdictional powers of government, the phone service in Canada is, in the phrase of one company, 'Balkanized'. However, the federal government has direct regulatory power over the two largest companies, which supply roughly 63 per cent and 8.3 per cent of the nation's total phones respectively. Therefore, the practical control of the federal authorities is greater than the nominal division of power suggests.²³

Canadian telephone and record services are not so open to competition as those in the United States, but competition is considerably more open than those provided by Postal Telephone and Telegraph Authorities in Europe. In Canada each common carrier has a monopoly on its local phone service and CNCP is the national provider of telex and telegraph services. However, since 1979 the federally regulated firms have to interconnect with private lines offered by CNCP Telecommunications for clients who wish independent local voice and data services. CNCP admits that this has not been a serious threat to the local monopoly on voice traffic.²⁴

Most of Canada's long-distance traffic travels over Telecom Canada. This is an association of the phone companies operating in each province and the national satellite carrier, Telesat Canada. (The federal government and the major common carriers jointly own Telesat Canada.) Regulators have justified the monopoly on grounds of efficiency and the benefits of cross-subsidization for the consumer. This subsidization is primarily from long-distance traffic to local users of phone services, although the size of the transfer is much in dispute. It also consists of a transfer from the larger and lower-cost providers of long distance to those provinces with higher costs and lower volumes. The size of this transfer is determined by a formula set by the member companies under a unanimous consent rule. As greater competition threatens profits, this formula will be under attack by the lower-cost phone companies. (As one might expect as a corollary to our model, even within this group of companies there will be efforts to roll over the costs of adjustment. One rumoured method might be to purchase

Teleglobe Canada so that the members of Telecom Canada could split up Teleglobe's profits as an offset to an adjustment of the revenue split from domestic long-distance.)²⁵

CNCP has requested entry into the long-distance voice market. It argues that consumers would benefit from competition. It has also claimed that its existing market in data communications would erode badly if it cannot match Telecom Canada in offering both phone and data services. A clever aspect of CNCP's proposal is its promise to match the existing carrier's degree of cross-subsidization to local users. Moreover, it suggests that its entry would fulfill most of the need for an alternative long-distance carrier. Hence, it is arguing for a duopoly where a continued commitment to cross-subsidization would limit savage discounting of prices.²⁶

The CNCP application is initially only for the territories regulated by the CRTC. But CNCP hopes that success there would pressure other provinces to open up in order to remain competitive in attracting firms with major telecommunications needs. (Moreover, CNCP is challenging the federal government to invoke its latent power to take over long-distance policy from the other provinces. The federal regulators doubt that the government possesses such an authority.)

The role of users

The politics of basic service offerings in the future will grow even more complicated. Telecommunications costs are a rising share of the operating costs of large companies and are becoming more vital in the battle to control costs for many large companies.²⁷ Therefore, large users favour more competition. They support the CNCP application, but they also argue that a duopoly is unlikely to be sufficiently competitive. Some believe that CNCP's implicit support for duopoly is meant to keep its profit levels above fully competitive levels while ensuring that long-distance competition will not interfere with local rates.

Moreover, some users already are shopping by circumventing the Canadian long-distance system in part for their calls from Canada to the United States. For example, Longnet Telecommunication Inc. was incorporated in October 1982 in Vancouver. Canadian customers dial Longnet's number in Ferndale, Washington. Their calls are then rerouted to WATTS lines anywhere in the United States. Longnet claims cost reductions of 14 per cent to 42 per cent. Longnet has also

announced its intention to expand operations to handle discounted calls to Eastern Canada via the United States. Common carriers in Canada worry that this will become a common phenomenon even though it exists in the twilight zone of regulatory acceptability. In response, BC Telephone asked the CRTC on 17 April 1984 for authority to block calls to US discount long-distance companies so that it might escape the erosion of its Canada/US long-distance revenues and any consequent impact on telephone subscribers' rates. On 4 May 1984, the CRTC denied BC Telephone's application for an interim order and requested comments from interested parties. On 20 July 1984, BC Telephone applied to restructure its Canada/US long-distance rates so that they would reflect costs more closely by increasing rates for short-distance calls (for example, to Ferndale, Washington) and decrease rates for longer distance calls. On 5 December 1984, the CRTC decided to consider BC Telephone's two applications in a single proceeding and asked for comments.²⁸

Shopping has also inspired large consumers to support federal approval for new long-distance carriers from the United States. Particularly in the federal territories large users have backed experiments by Bell Canada that introduced MCI to the Canadian market for calls travelling from the United States to Canada (but not vice versa).²⁹ By taking aim on traffic in Ontario and Quebec it may be possible to pressure authorities in other provinces to change their policies.

The most important form of shopping has not yet materialized and its emergence is being actively discouraged by the regulators. Due to a decision to permit free entry into the provision of enhanced services (discussed in the next section), the largest users, and perhaps others, may be able to threaten, with some hope of success, to bypass the public long-distance networks. This would be possible if voice calls were 'enhanced' by introducing such features as message storage and forwarding to bypass the network.³⁰

Small residential consumers have opposed the move to liberalize competition in long-distance traffic partly because they are frightened by the reports of major rate increases in the United States. The provincial regulatory authorities have emerged as well organized, articulate defenders of these users. (The case of small businesses is discussed in the next section.) Moreover, the provinces most insistent on retaining past practices are also those with comparatively smaller

clusters of large businesses to oppose protection. They also have local phone companies with comparatively higher cost structures for long distance than the ones in federally regulated areas. Therefore, in many cases they also are representing the interests of their phone companies.

The phone companies disagree among themselves about the amount of competition to accept. Bell Canada and, to a lesser extent, BC Telephone are comparatively lower-cost producers of telecommunications services and have extensive direct or indirect interests in the equipment market. They both have service areas where the promise of rapid expansion of newer enhanced services is great enough to make the sting of a loss in the monopoly on basic services less severe. However, unlike the case of AT&T in the United States, there is nothing in Canadian law to forbid them from providing enhanced services, so they do not need to make a deal on basic services in order to enter the enhanced market. If they have a positive incentive to entertain reform, it is because they fear that larger users will bypass the networks in the future if the disparity between Canadian/US rates or the public and private networks grows too great.

In terms of our earlier hypotheses: the prospects of federally regulated carriers competing for rapidly growing new markets make more competition in basic network services less painful for them than it would be for the other provincial carriers. Moreover, Bell Canada and BC Telephone are comparatively lower-cost suppliers and have some multinational corporate interests. This, too, makes them less negative towards competition. However, rather than simply accepting new competition, they are fighting back by seeking a 'level playing field'. Bell Canada has argued that a 'rate rebalancing' should precede greater competition. Rebalancing would end the subsidies to local service from long distance and thereby permit much lower rates. According to Bell this would permit fair competition. According to its critics if rebalancing occurred all at once it might raise the cost of local services so quickly that regulators could choose to limit entry rather than pay the cost of imposing radically higher costs on consumers in a short time (see hypotheses 2 and 3). In addition, because it is so difficult to determine the precise allocation of joint costs (such as when the same cable carries both local and long-distance calls), it is hard for regulators to prevent entrenched phone

companies from proposing a rebalancing that favours their competitive strengths. It is better, say the critics, to allow limited competition to unearth the best pricing system.³¹

Confronted by a relatively small number of producers and a set of large consumers actively engaged in shopping, regulators in general have tried to balance moves towards more competition with guarantees that minimum shares will be reserved for older, basic networks. The decision to allow limited entry by US long-distance carriers such as MCI also guaranteed revenues to the Canadian common carriers for use of their transmission services. This compromise safeguards traditional common carriers against sharp drops in market share while permitting large consumers to realize short-term savings on their phone bills. The next round of choices will centre on the domestic market for long-distance calls. Regulators seem to be heading towards a policy that will allow limited competition to reduce prices moderately. Regulators are unlikely to sanction full-scale competition in the near future. This strategy makes perfect political sense in the short-term, but may not be viable over the long run as enhanced-services options increase.³²

The politics of Value Added Networks: all in vain?

The demand for the enhancement of voice services and computer services offered by communications networks (the Value-Added Networks, or VANS) is growing more rapidly than the market for basic network services. Some VANS, especially those owned by such large multinationals as Control Data and General Electric, offer financial accounting services, while other VANS simply process and format the data communications of their client firm so as to maximize efficiency and lower costs. The *Financial Times* estimated that the worldwide value-added services market for US-based vendors was about \$16.45 billion US in 1981 (measured by sales). They estimated that by 1986 this market would reach \$46.83 billion US.³³

Exports are a major part of the business of VANS. For example, in 1977 US firms that earned over 60 per cent of their revenues from software and services reported that \$257 million US of their \$1,727 million US in sales, or 14.8 per cent of total revenues, came from foreign markets. Total export sales by all VANS is running at about \$1 billion US per year. However, Canada appears to be a comparatively weak entrant in this regard. Total export sales to the United States of

data services run on the order of \$10 million US per annum, a figure far smaller than the level of imports from the United States of these services.

The structure of the US industry is hard to judge precisely, because the data on sales remain inconsistent and sketchy. However, one study suggested that concentration in a key part of the computer services industry, on-line data bases, was very low. In contrast, the total Canadian market for such services (excluding in-house services in companies) was about \$486 million US in 1976 and roughly one quarter of this amount was imported (mostly from the United States). Canadian data-services companies are not large and the market is highly fragmented. The bright light in Canada's role in international trade pertains to data bases. In 1982 the second and seventh largest data-base companies in the world, I.P. Sharp and QL Systems, Ltd. (judged by the number of on-line bases offered) were Canadian. Of the 197 on-line vendors identified by one comprehensive directory, 116 were based in the United States, 19 in Canada, 14 in France, and 11 in Italy.³⁴

The Canadian picture is much less favourable than the one in the United States because the higher costs of transmission and equipment (described earlier) prevent exploitation of Canada's lower labour costs.³⁵

Ultimately, VANS are significant because they are the key to the other segments of the telecommunications market. If the government permits free entry into the operation of VANS, it will eventually threaten any attempt to restrict competition in basic services (in order to protect residential users) and put tremendous competitive pressure on the government and equipment makers to keep the price of data-processing equipment competitive with the rest of the world. We shall shortly suggest that although Canadian federal policy appears to have granted freedom of entry, it in fact has not. The two important elements of hidden restrictions come in the building of independent transmission facilities and the limits on the use of US networks.³⁶

In August 1984 the federal government ruled in favour of freedom of entry into enhanced services. While this does not automatically mean that the rest of the provinces will follow, it gives interested users and would-be entrants into the business a very useful precedent on which to build. True freedom to compete puts a limit on the cost of computer equipment because if cost differentials become too great,

customers will curb processing data in Canada and switch to US VANS. It also threatens the price of basic services because over time major users will find it profitable to combine their voice and data into enhanced services. As in the United States a small percentage of all users generates the bulk of the long-distance traffic – banks, for example, are particularly heavy users. So, their exit from the public network would greatly reduce volumes while forcing the general public to pay for the fixed costs of the remaining facilities.

Hidden barriers

In fact, Canada has not permitted full freedom of competition in VANS. The first limit is that the Department of Communications continues to resist the authorization of independent new transmission facilities for new entrants. In all but a very few cases, the department has refused applicants the right to build private microwave transmission systems. Moreover, it seems reluctant to force Telesat Canada to give up its monopoly on the provision of satellite services. This decision leaves new VANS dependent on the terms available from the established phone companies. Although VANS can bargain for attractive rates on leased lines, some analysts (including some in the Department of Consumer and Corporate Affairs) remain convinced that full price competition and the most efficient design of networks are impossible without more independent facilities.³⁷

A second barrier to free entry is the limits on bypassing Canadian networks by using US-based VANS. For several reasons, many of which are supported by most Canadian citizens, governments often insist on some degree of local data-processing, as such banking data.³⁸ Thus, even free access to US VANS would not mean the end of all required local data-processing. However, more fundamentally, the government and phone companies have long-standing policies that limit the crossing points for telecommunications from the United States to Canada to official network carriers. As now written, the rules of the federal government and phone companies make it impossible to rely on US VANS to handle data shipped from a Canadian origin to a Canadian destination. (One-way transit in either direction is permissible.)

Canadian regulators, in short, seek to protect the basic network and allow the opening up of data services to greater competition. To do so they produced a package that slows the introduction of these services

and partially protects the smaller Canadian data networks from US firms (see hypotheses 2 and 3). (The Canadian companies believe that they are competitive and seek a US market. Therefore, they should favour small increases in protection that do not upset trade relations with the United States)

So far, the existing VANS and the major users have generally supported Canadian decisions. The current policy guarantees the right of VANS to operate and of users to establish their own systems. The VANS are relatively small companies that are not ready to make giant investments in new facilities. The largest users know that current uncertainties about increased competition permit them to bargain aggressively about the terms and prices of services. Therefore, as predicted by hypothesis 9, the attention of the VANS and users have cycled, for the most part, to the issue perceived to promise the greatest incremental profit at present: lower rates through increased competition in basic services.

The one exception to this choice is the initiative on transborder data services launched by the Royal Bank of Canada and supported by other large banks, all of which are major users of transborder data networks. The Royal Bank's initiative came from the chairman of the board. His rather unusual political move reaped considerable attention, including quick affirmative signals from US trade negotiators. The Royal Bank seeks a Canadian/US agreement to allow much freer competition in data-processing services and free movement of information between Canada and the United States.³⁹

The initiative is consistent with the position of many trade organizations. For example, the Canadian Business Equipment Manufacturers Association, a group with a substantial number of local subsidiaries of multinational firms, favours freer trade in data services so members can become specialized niche suppliers of computer equipment and services for their parent companies.⁴⁰ But many like-minded companies are puzzled about the reasons why the Royal Bank launched the initiative after the recent decision on enhanced services.

There were two possible motives for the bank's move. One was to sheath data flows in a free-trade agreement so restrictions on data networks could not become a bargaining chip in disputes on such populist issues as broadcasting of television across national boundaries or expansive claims on behalf of privacy. Another was to

ensure that the banks would not be caught up in a belated effort to restrict data networks once advocates of protecting household rates for basic services realized the full potential for bypass.⁴¹

Canadian regulators have acted as our model would predict. Their policy has responded to the needs of large, well-organized customers without imposing visible immediate costs on the politically powerful but unruly organizations of residential consumers. The VANS get free entry while the common carriers are assured revenues by the leasing of their facilities. All is politically beneficial except for three points. First, if users and VANS make substantial progress on lowering costs of basic networks, their attention may cycle back to the yet unexploited gains available from independent facilities and true free access to US networks. Second, the protection of the basic network may be more difficult in the future as large users begin to exploit the loophole of bypassing through enhanced services. Third, small- to medium-scale users of enhanced services (both current and potential users) may organize and become much more vocal about their needs.

Small- and medium-sized users could be the big losers if policy continues down the current path. In essence, they are in the worst bargaining position vis-à-vis the phone companies for negotiating on leased facilities for their enhanced services because they lack expertise and sufficient buying power. Therefore, they are most dependent on the development of a highly cost- and service-competitive array of new VANS. This is precisely what the emerging policies may retard. As a result, the Canadian business sector could divide into a two-tiered 'information society'. The largest users would have shopped aggressively to produce sophisticated networks at low costs. The smaller users would be relegated to systems that are more advanced than those traditionally available but far less powerful and economical than those practical for major users.

Even if they are at competitive disadvantage, these smaller users lack a large firm to lead their lobbying of government. Will any political leadership have sufficient strength and interest to organize them into a coherent constituency? This depends on whether these companies feel impelled to modernize their information systems. Are these businesses trying to become more focused nationally and eventually internationally in their production and marketing? And, where they are located? Would interested companies be clustered in any of the regions where provincial phone and regulatory authorities

might be looking for an alternative to the drift in federal policy other than simply retaining the status quo? These are questions beyond the competence of this paper.

CONCLUSION

This review of the politics of the individual market segments leads to several conclusions. First, the most prominent issue on the regulatory agenda for the short-run will be competition in basic services. The handling of basic services will directly affect the profits and losses of all major users and producers. The degree of conflict will be substantial, because it is an issue where provincial authorities can organize smaller users for political purposes. Accordingly, regulators will probably try to fashion a strategy for gradual change that will produce immediate, substantial savings to major users without forcing rapid changes in the local phone bill.

Second, decisions about VANS are really the most significant set of choices facing the market. Increased competition in this segment limits the amount of competition that could exist among equipment suppliers. It also increases the pressure for more competition in basic services because bypassing the phone network by enhancing voice messages is a significant option for large users.

Our third conclusion is that free trade in the Canadian/US markets for telecommunications and data processing would force major reorganization of the rules governing competition inside Canada because it is easy and economic to bypass the Canadian networks. However, existing Canadian rules governing the creation of independent transmission services, the use of satellite communications, and the handling of voice traffic between the United States and Canada prevent the emergence of a fully open and competitive market, even though Canada has liberalized competition concerning enhanced services. If limits on trade between the two countries were lifted at the same time as regulators tried to restrain competition at home, it would eventually lead to an attack on the newly liberalized trade with the United States.

Fourth, equipment makers have played a smaller role in the policy debate than we expected. Given the huge sums at stake, the equipment makers have been relatively quiet. Users and multinational producers have banded together to limit the degree of protection. Even smaller Canadian companies accept relatively open

markets because they want to be active in the US market. However, some protectionism persists. Liberalization of competition for enhanced services limits the degree of possible protection without causing major users to bypass the Canadian market for their significant data-processing business. If the Royal Bank's initiative succeeded, this would reinforce the bargaining position of users.

Our final conclusion pertains to the overall character of the political debate in Canada. As our model predicted, there is a consistent cycling of attention from issue to issue. It is our impression that sometimes the participants believe that a permanent resolution of some issues has occurred. Our model would predict instead that it is a temporary truce until a more profitable issue has been addressed. Just as importantly, the regulatory authorities' efforts to moderate the degree of change has provided enormous incentives for individual bargains by the major players, either by commercial arrangements or successful exploitation of regulatory 'loopholes'. This has seemingly blunted any campaign for systematic reform by many of the key participants in the market. One person that we interviewed in Canada attributed this low profile to the Canadian penchant for avoiding public squabbles in business-government relations. Perhaps. We think that it is more likely a symptom of the old tale that successful improvisation by concerned parties makes them less willing to engage in heated debate over a general reordering of a critical public policy.

NOTES

- 1 For a more elaborate breakdown of the market segments and the trade problems facing telecommunications see: Geza Feketekuty and Jonathan D. Aronson (1984) 'Meeting the challenges of the world information economy' *The World Economy* 7: 1, 63-86 (March).
- 2 Technical standards influence competition in the equipment and software markets because they can provide clear technical guidelines for all suppliers. This can make it easier for many suppliers to enter the market. However, when there are several competing designs on the market, the adoption of a standard also opens the possibility of discriminating against one design in favour of another. As one would expect in the Canadian/US market, all major competitors agree that access to the US market

is critical, and most of the major players are multinational firms. So Canadian firms have been content to co-ordinate on standards with US firms. However, disputes over standards among competing groups of firms in the market involving cross-cutting alliances spanning both countries may occur someday.

- 3 The economics of telecommunications systems is analysed in: Gerald W. Brock (1981) *The Telecommunications Industry* (Cambridge: Harvard University Press); Harry M. Shooshian III, ed. (1984) *Disconnecting Bell* (New York: Pergamon). An overview of US telecommunications policy is found in: Dan Schiller (1982) *Telematics and Government* (Norwood, N.J.: Ablex Publishing).
- 4 The supervision by the cabinet does not have to be very active. It simply requires the officialdom to realize that running counter to their political masters is dangerous and has a fair chance of being discovered. An analysis of Canadian policy consistent with this analysis is: M.J. Trebilcock, D.G. Harris, R.S. Prichard, and D.N. Dewees (1982) *The Choice of Governing Instrument* (Ottawa: Economic Council of Canada). Also consult: D. Lloyd Brown-John (1981) *Canadian Regulatory Agencies* (Toronto: Butterworths).
- 5 For information on the affiliation, ownership, type of corporation, level of regulation, and principal territory of operation of the eighteen major Canadian telephone and telecommunications carriers see: CNCP Telecommunications 'The crisis in Canadian telecommunications policy and regulation'. Toronto: CNCP Telecommunications, no date (probably 1983), 20.
- 6 Richard Cooper noted this consequence of closely linked economies in his classic book, *The Economics of Interdependence* (New York: McGraw-Hill, 1968).
- 7 As a result of the Second Computer Inquiry conducted by the Federal Communications Commission (FCC), the United States chose to withdraw most of its regulatory oversight over the value-added services portion of the communications market. The line between computers, which had traditionally been unregulated, and communications, which was always heavily regulated, became impossible to delineate. In addition, despite the objections of many US companies and almost all foreign postal, telegraph, and telecommunications authorities, the FCC decided to apply Computer II internationally. See the petition for reconsideration

of Computer II filed by Western Union International before the FCC on 24 September 1982.

- 8 A perennial issue in the analysis of regulation and foreign economic policy is the degree to which public officials act on behalf of an image of the public interest rather than the preferences of private interests. Our approach does not rule out the pursuit of the public good. It simply accepts that for the purposes of theorizing, any defensible statement of such an agenda is likely to be very general (for example, 'be equitable' or 'retain some degree of national autonomy in communication facilities'). The policy debate analysed in this paper does not include many alternatives that would radically violate such priorities. But within these parameters widely different outcomes are possible. We hypothesize that domestic politics are the critical determinants of action within this range. For a defence of the public interest argument in regard to Canadian foreign policy and a critique of the underlying theory using cases from the United States, respectively, see: David D. Dewitt and John J. Kirton (1983) *Canada as a Principal Power* (Toronto: John Wiley); Peter F. Cowhey and Gary C. Jacobson (1984) 'The political organization of domestic markets and US foreign economic policy'. A paper presented to the 1984 Annual Meeting of the American Political Science Association, Washington, D.C. The modern literature on the politics and economics of regulation is staggering. A small sample of the work on which we draw is: Bruce N. Owen and Ronald Braeutigam (1978) *The Regulation Game: Strategic Use of the Administrative Process* (Cambridge, Mass.: Ballinger); James Q. Wilson (1980) *The Politics of Regulation* (New York: Basic Books); Roger G. Noll (1984) 'The political and institutional context of communications policy'. *Social Science Working Paper 541* (California Institute of Technology, August); A. Breton and A. Scott (1978) *The Economic Constitution of Federal States* (Toronto: University of Toronto Press).
- 9 Sam Peltzman (1976) 'Toward a more general theory of regulation,' *Journal of Law and Economics* 19, 211-40. Russell Hardin (1982) *Collective Action* (Baltimore: The John Hopkins University Press); Stephen Globerman and Aiden Vining (1984) 'Overview of bilateral trade issues in the entertainment industry'. A paper presented to the Conference on Canada/US

- Interdependence in the Entertainment Industry, Columbia University, New York, New York, 2 November 1984 in which they suggest that even in the sensitive area of culture a few Canadian producers may be keeping costs of entertainment to Canadian users higher than need be by using a cultural sovereignty pretext.
- 10 Our analysis assumes that firms attempt to maximize profit but are constrained by imperfect information or the lack of tools and opportunities to do so in many markets where governments play an important role. Accordingly, even a firm with monopoly power may bargain in good faith about how to make the trade-offs we describe.
 - 11 A classic case of loopholes limiting the incentives for the support of reform took place under the US Voluntary Foreign Credit Restrictions from 1965 to 1974. Major money centre banks, such as Citibank and Morgan Guarantee, learned how to use their foreign offices to dodge the program so effectively that they had competitive advantages under the system. The reform of certain US oil-price controls also is illustrative. Some companies learned to maximize their advantage under the controls. Still, the controls cost them more than they earned from working the loopholes. Therefore they favoured the abolition of the controls. On the concept of 'exit' see Albert O. Hirschman (1970) *Exit, Voice and Loyalty* (Cambridge: Harvard University Press).
 - 12 US regulators attempted a similar strategy but the more independent US judiciary speeded up the process of allowing more competition faster than even the FCC sought.
 - 13 Speech by Edmund B. Fitzgerald, President and CEO, Northern Telecom Limited to the 1984 Investment Conference, Raleigh/Durham, North Carolina, 27 November 1984, 3; 'AT&T invades its Canadian cousin's turf,' *Business Week*, 14 May 1984, 50; 'Canada VI: High technology role remains uncertain,' *Financial Times*, 8 April 1983.
 - 14 Overall Canada's merchandise trade surplus increased to \$9.9 billion Canadian in the first half of 1984 from \$9.5 billion Canadian in the first half of 1983. However, Canada's surplus with the United States increased by \$2.6 billion Canadian in the same period. Canada's exports to the United States increased by 33 per cent in the first half of 1984 compared to the first half of 1983 and its imports (from a smaller base) increased by 32 per

- cent. See: The Conference Board of Canada (1984) *International Business Perspective* 1: 1 (Ottawa) October, 1-2. Our discussion of equipment, basic services, and VANS draws heavily on a working paper prepared by National Telecommunications and Information Administration in the US Department of Commerce in 1984. Also see: 'AT&T invades its Canadian cousin's turf'. *Business Week*, 14 May 1984, 50; 'Northern Telecom's all-out attack on Western Electric's turf,' *Business Week*, 5 December 1983, 178-9.
- 15 Until 1962 AT&T held a 44 per cent stake in Bell Canada. As a result of lingering problems about patent rights it refrained from entering the Canadian market until 1984. Now it hopes for sales of about \$150 million US per year by 1990. 'AT&T invades its Canadian cousin's turf,' *Business Week*, 14 May 1984, 50.
 - 16 On Mitel see: 'Telecommunications success story'. *Financial World*, 15 November 1981, 23-4 and 'How Mitel plans to regain its momentum'. *Business Week*, 5 March 1984, 52; Oswald Ganley and Gladys Ganley (1982) *To Inform or Control* (New York: McGraw Hill) 166. However, Canadian firms are also extremely important investors in the US market – 21 of the largest 100 foreign firms in the United States are Canadian owned. 'Here come the Canadians,' *Forbes*, 4 July 1983, 101-10.
 - 17 See, for example, Jon S. Cohen, Jeffrey Rubin, and Ronald S. Saunders (1984) 'Chasing the bandwagon: government policy for the electronics industry'. *Canadian Public Policy* Vol. X, No. 1, 25-34.
 - 18 The higher end of the range reflects a mix of the Canadian federal sales tax of 10 per cent plus a combination of the nominal tariff and the Canadian government's method for determining the customs valuation of the equipment. Some parties claim that Canada's valuation method greatly increases its level of effective protection. Interviews, Toronto and Ottawa, 28, 30 November 1984.
 - 19 See, for example, CNCP Telecommunications (1983) 'Telecommunications: a core component of economic growth'. Submission by CNCP Telecommunications to the Royal Commission on the Economic and Union Development Prospects for Canada, 31 October, 1-31.

- 20 Canadian Business Equipment Manufacturers Association (CBEMA) (1982) 'Transborder data flow: an industry perspective on the implications for Canadian public policy. (Toronto) 1-10.
- 21 Similarly, until 1981 Western Union monopolized the US domestic market for record services (telegraph and telex), but was forbidden to compete internationally. (International record carriers such as ITT, RCA, TRT and FTCC competed only with each other to provide international record services.) Then, Western Union was allowed to compete internationally, but lost its monopoly position in the domestic telex market with the passage of the Record Carrier Competition Act of 1981, which removed all distinctions between national and international markets.
- 22 A useful historical and analytical summary of the Computer I and Computer II decisions is found in the affirmation of the FCC Computer II decision by the US Court of Appeals for the District of Columbia Circuit, No. 80-1471 Computer and Communications Industry Association, Petitioner v. Federal Communications Commission and United States of America, Respondents, (and other associated cases No. 81-1193, No. 81-1217, No. 81-1222, No. 81-1223, No. 81-1224, and No. 81-1226). Decided 12 November 1982.
- 23 Bell Canada, operating in the provinces of Quebec and Ontario, owns significant portions of each of the main telephone companies in the Atlantic provinces. BC Telephone is indirectly owned by General Telephone and Electric, an American phone company. The principal telephone companies in Alberta, Manitoba, and Saskatchewan are provincially owned and regulated. The remaining four are privately owned and provincially controlled. Our figures on shares of telephones were computed from: Telecom Canada (Department of Public Relations) (1983) *Statistics 1983* (Ottawa). Other measures of size of the phone systems are consistent with this indicator.
- 24 Evidence of J.G. Sutherland, president and chief executive officer of CNCP Telecommunications, prepared in support of the application for the interchange of traffic with the public-switched-telephone networks, before the Canadian Radio-Television and Telecommunications Commission, 9 April 1984, especially 19-23.
- 25 Interviews in Toronto and Ottawa, 28-30 November 1984.

- 26 CNCP Telecommunications (1984) 'Telecommunications policy: riding the waves of change'. Prepared for the Telecommunications Policy Review, Department of Communications, Ottawa (May); CNCP Telecommunications, Application for Interchange of Traffic with Public Switched Telephone Networks, before the Canadian Radio-Television and Telecommunications Commission, Files, 25 October 1983. Paragraph 7 of this application, which addresses the issue of cross-subsidization, reads: 'Should the Commission be satisfied on evidence presented by Bell Canada or by B.C. Tel that either or both of them are required by public policy to provide telecommunications services at less than cost, and that the granting of this application without compensation additional to the cost of the facilities furnished to CNCP would prejudice the ability of either Respondent to comply with that public policy, then CNCP is prepared to pay whatever additional compensation the Commission may determine to be reasonable in the circumstances.... Thus, even assuming that, as a matter of public policy, the Respondents are required to provide local public telephone service or service to remote areas at less than cost, the granting of this application will have no adverse effect on either local public telephone rates or public telephone service to remote areas.'
- 27 See Richard Schultz (1982) 'Partners in a game without masters, reconstructing the telecommunications regulatory system'. In *Telecommunications Regulation and the Constitution* (Ottawa: Institute for Research on Public Policy); Steven Globberman (1984) 'The adoption of computer technology by insurance companies'. (Ottawa: Economic Council of Canada).
- 28 In addition to Longnet, Cam-Net began operating a similar service out of Victoria, BC in the spring of 1984 and American Budget-Tel has announced plans for a similar service to operate out of Point Roberts, Washington. British Columbia Telephone Company, Memorandum of Evidence, 'Interexchange competition and related issues'. CRTC Telecom Public Notice 1984-6, 30 April 1984; CRTC Telecom Public Notice 1984-24, Ottawa, 4 May 1984 and CRTC Telecom Public Notice 1984-71, Ottawa, 5 December 1984.
- 29 'MCI, Canadian phone firms to link services'. *Los Angeles Times*, 14 December 1982, IV.

- 30 Canadian Radio-television and Telecommunications Commission, Telecom Decision CRTC 84-18, deals with definitional issues and policy questions stemming from the distinction between basic and enhanced services. The CRTC is concerned that 'by making marginal enhancements to a basic service, an enhanced service provider could thereby be enabled artificially to circumvent carrier restrictions on resale to provide basic services ... The Commission has therefore decided that, while resale of all carrier services should be permitted for the provision of enhanced services, it should not be permitted where the enhanced service has as its primary function the provision of a basic service.' (Ottawa) 12 July 1984 (23).
- 31 Bell Canada argues that it costs \$1.93 to generate \$1.00 of local service revenue, versus \$0.32 to generate \$1.00 of long-distance revenue. CNCP disputes Bell's computation. Joseph S. Schmidt and Ruth M. Corbin (1983) 'Telecommunications policy in Canada, the regulatory crisis,' *Telecommunications Policy*, 215-27 (September).
- 32 Richard Carter (1984) 'Le Canada est-il entraine dans le dereglementation: le case des communications'. *Canadian Public Policy*, Vol. X, No. 1, 10-24.
- 33 'Networks bring useful benefits'. *Financial Times*, Special Survey on Computers in Business, 11 April 1983, p. XVIII. Indeed, the demand for these VANS and related services are starting to catch up with the sales of the equipment industry. In 1983 US software companies, consulting firms for data processing, integrated systems suppliers of software and hardware, and remote-data-processing firms had sales of \$31.6 billion US. Remote processing was the single largest item in this total.
- 34 1980 sales of on-line data bases in the United States amounted to \$1.17 billion US (and was projected to grow at 30 per cent per annum to \$4.2 billion US by 1985). The largest four firms accounted for about 12 per cent for sales and the top eight took a bit more than 19 per cent. 'Transborder data flows: access to the international on-line data-base market, a technical paper'. ST/CTC/41 (New York: United Nations, 1983) 26-38: information on on-line vendors cited by the United Nations were from Ruth N. Cuadra, et al. eds. (1982) *Directory of Online Databases* (Santa Monica, CA: Cuadra Associates).

- 35 One VAN operator told us that it was difficult to determine the causes of competitive failures of his company in the United States. In addition to equipment and transmission costs he speculated that their marketing system was still too primitive and US firms preferred a US company as a supplier of this service. He and others interviewed said that a projected loss of 2,300 Canadian jobs by 1985 due to imported computer services from the United States, a figure once produced by a study conducted by the Canadian government, was far too high. See "'Data tide" is flowing out on Canada'. *The Citizen*, Ottawa, 21 February 1981, 13.
- 36 Canada/US disagreement over transborder data flow has been hotly discussed and little resolved during the past decade. The issue has expanded and contracted from time to time to include border broadcasting, satellite disputes, and the location of data processing performed by US banks operating in Canada. See, for example, W.E. Cundiff (1978) 'Issues in Canada/US transborder computer data flows. Working Paper No. 1, Futures Study Program, (Ottawa: Institute for Research on Public Policy) August, 19; 'The management of transborder data flows: US-Canada and beyond'. Proceedings of a conference held at Columbia University, New York, 2 April 1984.
- 37 One interviewee claimed that current law would permit independent facilities and his firm was prepared to challenge the law's interpretation by federal authorities if necessary. Others firmly deny this claim.
- 38 The Canadian banking act of 1980 allows US banks to process data on Canadian citizens outside Canada, but requires that a complete set of records on Canadians be maintained within Canada's borders. Kenneth J. Friedman (1981) 'The 1980 Canadian Banks and Banking Law Revision Act: competitive stimulus or protectionist barrier?' *Law and Policy in International Business*, 13: 3, 783-810, or more simply Ronald L. Plessner (1982) 'Issue of data flow across national borders must be faced'. *ABA Banking Journal* 71-8 (February).
- 39 The bank acknowledged that some Canadian VANs might face competitive difficulties from free trade. Therefore, it urged some combination of tax relief and assistance in research and development for the VANs. Rowland Frazee, 'Trade and technology, it's Canada's move'. A speech prepared for delivery to

the Canadian Club of Toronto, 7 November 1983, published by The Royal Bank of Canada; Rodney de C. Grey (1983) 'Traded computer services, an analysis of a proposal for Canada/U.S.A. agreement'. Grey, Clark, Shih, and Associates for The Royal Bank of Canada; Peter F. Cowhey and Jonathan David Aronson, 'Canada-US trade in communications services: The prospects for and implications for liberalization'. In 'The management of transborder data flows: US-Canada and beyond'. Proceedings of a conference held at Columbia University, New York, 2 April 1984.

- 40 Canadian Business Equipment Manufacturers' Association (CBEMA) (1982) 'Transborder data flow: An industry perspective on the implications for Canadian public policy' lays out CBEMA's general view on transborder data flows.
- 41 One observer suggested to the authors that the banks have to deal constantly with twilight zones of legality in managing some of their data- and cash-managment operations. By adding the presumption of free flow of data under free trade the banks would further discourage examination of these operations. We found no evidence to corroborate this speculation.

Comments

Leonard Waverman

University of Toronto

Cowhey and Aronson begin their paper with an important assumption: that when the United States deregulated its telecommunications market, it unilaterally changed the rules of competition for the rest of the world in both the telecommunications and computer industries. This statement must be carefully analysed to see, first, whether it is true, and second, if true, what it means for other countries such as Canada. A second major point of the paper, and one which is less argumentative, is that it is difficult (and becoming more difficult) to distinguish among the three traditional segments in the telecommunications market – suppliers of equipment, providers of the links, that is, the standard telecommunications firms, and those firms providing enhanced services. The third central point in the paper is that network rules skew competitive advantages. This is probably the central point of the paper and, while true, its implications for Canada have to be examined realistically.

From these three main points, the authors argue that first, Canadian regulatory authorities have to accommodate not only interest groups within Canada but also interest groups within the United States and second, that recent decisions to liberalize the provision of enhanced services in Canada have a number of implications for the regulation of other forms of telecommunications services, including trade with the United States in computer services. The authors also predict that these decisions require a choice for Canada – either further deregulation of the market or discrimination against the interest of the small users of both basic and enhanced telecommunications services.

The authors' analysis is written in the generalized model form developed by George Stigler – a market for regulation. The suppliers and demanders of regulation in telecommunications markets are described and in general terms the objective function of the regulator discussed. A number of hypotheses are established for the operations of the telecommunications market. In addition, a number of assumptions are made. The first such assumption is that politicians and regulators in Canada comprise a single group. This, as the authors concede, is a shorthand analysis. Canadian regulators are not the independent statutory regulatory agencies that exist in the United States. For example, the federal cabinet can overturn decisions by the major federal regulator in the area – the Canadian Radio-Television Telecommunications Commission (CRTC). Several authors (Waverman, Schultz, Janisch, Trebilcock) have, however, pointed to the ability of the regulators to maximize an objective function that is different from that of the politicians. As a second assumption, the analysis treats all firms operating under federal regulation as one group and treats all other firms and regulators in the Canadian context as a second cohesive group.¹ This leads to some error in the analysis. At the federal level, even though Bell Canada, British Columbia Telephone, CN/CP Telecommunications, and others are subject to federal jurisdiction,² decisions are introduced on a piecemeal basis. For example, CN/CP Telecommunications received interconnection with Bell Canada for data services but in 1979, BC Telephone fought the extension of this right to their territory (a point that the authors miss in their analysis). Similarly, other regulatory jurisdictions within Canada have differing views as to the merits or demerits of certain policies, such as competition.

Another assumption, and one tied into the first point of the paper – that US policy is important to the rest of the world – is that there is so much trade and investment flows between the markets of the two countries that there is pressure to have consistent regulatory regimes. These assumptions, as I have suggested, require careful scrutiny because they may not be totally correct. These assumptions are important to the authors for they lead to the conclusion that one cannot have very different policies in the two countries since there is the ability to bypass the more strict regulatory regime and use services in the more lax regulatory regime. The authors suggest that the assumption that the two countries must ultimately have the same

regulatory regimes is demonstrated in the airline, trucking, and railroad sectors; they state that deregulation in the United States 'forces shifts in Canadian policy or shifts the focus of regulatory activities'. Clearly the airline, trucking, and railroad sectors are very different between the two countries, have been for a number of years, and will continue to be so in the future. I am therefore at a loss to determine on what basis the authors came to this conclusion.

The use of the framework of the 'market for regulation' analysis leads to a number of hypotheses. The first hypothesis is that the better-organized groups will benefit from regulation. The second is that the regulators try to limit the costs imposed on any one group in a particular time period. The third is that regulation tends to provide a longer time lag for adjustment than a competitive market. The fourth is that high-cost producers more often seek protection through regulation than low-cost producers. The fifth is that diversified firms are in a better position in regulatory markets as they can offset protection in one market with competition in the other. The sixth is that international firms will operate differently than national firms simply because the multinationals must maximize their earnings from a set of markets rather than from one market. The seventh, which is crucial to the analysis, is that if there is a potential for users to shop in different regulatory regimes, then differing regulatory policies will, in time, be driven towards a common ground. In contrast, the eighth hypothesis suggests that some firms will be reluctant to change or diminish regulatory walls because they have learned to play the game and therefore are better off with regulation and with differing regulation. Finally, the ninth hypothesis is that firms operating in more than one segment of the market will change their demands on the regulators as the marginal benefits of regulatory policies alter as compared to the marginal costs.

These assumptions and hypotheses lead the authors to make four major predictions of future Canadian policy:

- 1 Disputes between large users and producers will dominate policy.
- 2 Regulators will use a policy of gradualism.
- 3 A policy change in any one of the three segments (equipment, basic services, and enhanced services) will be reflected in the other segments.

4 There will be cycles in the interests of the major players in the game.

The authors turn to a brief description of some of these markets, beginning with the equipment market. Canadians are important producers of telecommunications equipment but not of computers or data-processing equipment. The Canadian market is much smaller than the US market. Canada places a much higher tariff on telecommunications equipment than does the US (17.5 per cent versus 8.5 per cent) while in both countries the tariff on computer hardware is about 3.5 per cent, and peripherals and software are duty free. The authors cite a common figure that the differential in computing costs between Canada and the United States is a disadvantage to Canada of some 40 per cent. They suggest that while this disadvantage might be only 5 to 20 per cent, these policies are costly to Canada. The higher costs of computer equipment in Canada must ultimately serve as a serious distortion in the Canadian economy because computers are and will be important in a number of industries. The reader is left mystified as to the source of the differential, since there is a similar (and low) tariff in both countries, and its real importance to Canadian welfare. This point is crucial since it is important to the authors' conclusions.³

Cowhey and Aronson discuss the telecommunications-equipment markets in both countries. Canadian telecommunications-equipment producers are very important suppliers in the US market; US equipment producers are not important suppliers to Canada. Canadian tariffs on telephone equipment are high; corresponding US tariffs are low. The authors suggest that further explanation is required as to why US producers do not lobby for changes in the Canadian tariff structure. Several reasons come to mind.

The first is that the Canadian telecommunications market is likely smaller than that in the state of California, and it is therefore something that may not be worth fighting over, given the high costs of attempting to change another country's tariffs. Second, both countries are losing the market for some equipment, such as the basic telephone, to Third-World producers. A third reason is that for the manufacture of other kinds of equipment, such as PBXs and switches, the Canadian suppliers are the low-cost suppliers – free trade could, in effect, make US equipment producers worse off. One might, at this

point, wonder why US telephone-equipment manufacturers have not lobbied for higher tariffs into the United States – the reason again may be that the flow of imports is relatively low since the major Canadian firm, Northern Telecom, has bypassed that form of protection by producing in the United States.

In discussing basic services, the authors suggest that even though regulatory jurisdictions are divided between the federal and provincial levels, the practical control of federal authorities may be greater than the nominal division of power since over 70 per cent of all telephones are in the two major companies regulated by the CRTC. This, I would suggest, is false. In fact, federal authority is much lower than the relative number of telephones under federal authority would suggest, because the federal government has not attempted to provide a national telecommunications policy. Many important areas (for example, interprovincial telephone rates) are either unregulated or else essentially subject to provincial veto. Federal power is much more circumspect than the authors' realize. There are also a number of fallacies in the authors' description of long-distance basic service in Canada. There is no monopoly of either facilities or services as the authors allege. CN/CP Telecommunications provides important competition in the data-transmission and private-line fields. The authors also suggest that the larger telephone systems (presumably Bell Telephone) are lower cost than the smaller systems (for example, the Prairie Telephone companies). There is, however, no evidence of this.

The notion of bypass is important to the authors' main contentions. The differences between regulatory regimes and the lower cost of long-distance telecommunications within the United States compared to within Canada can only be important for Canadian policy if there is a potential for Canadian users to use the US long-distance network. Bypass on calls between Canada and the United States is possible, as the authors suggest, by using firms that provide a short connection between Canadian and US points close to the border and a wholly-within-US discount service. These costs would be lower than using the standard Canada/US tariff as applied to normal carriers within Canada. Firms such as Bell Canada have responded by providing links with US discount firms such as MCI, at least for calls coming from the United States to Canada. As the authors suggest, Canadian firms have attempted to block such manoeuvres by raising the costs of short-

haul links to increase the costs of such bypass. For calls wholly within Canada, bypass would have to involve the use of a link to a US firm, a call wholly within the United States, and then a link back to Canada at the other end. Foreign exchange lines can be used for such purposes. A firm could, for example, have two foreign exchange lines (for example, one from Vancouver to Seattle, the other from Buffalo to Toronto), and use a US discount carrier within the United States to provide lower total costs than what would be incurred by using a Canadian carrier. Canadian regulators, however, could act so as to prevent this bypass by forbidding foreign exchange lines from Canada to the United States.

It is possible, I think, for Canadian regulators to bypass US regulation, a crucial point at odds with the authors' first sentence of the paper. It is not at all obvious to me – perhaps based on purely chauvinistic grounds – that changes in US competition mean that the whole world, including Canada, must submit to what happens in the United States. Canadian regulators *could* erect barriers at the border to prevent bypass and thus ignore US regulatory trends. One reason that such barriers could occur is that telecommunications flows between Canada and the United States can, at present, be provided only by existing common carriers. These carriers are few in number and not at all interested in uneconomic bypass (uneconomic from their own revenue perspective). Therefore, what happens in basic services in the United States can be extraneous to Canada.

Would Canada want to follow a totally different telecommunications policy than the United States? Some observers such as myself have called for greater competition in the Canadian basic service market, providing a closer link between costs and prices. Many other observers suggest that national unity and the fabric of Canadian society are dependent on the present system and that cross-subsidies, while perhaps inefficient from the economist's perspective, may be equitable and important for social purposes. Whatever the reason, I think it is clear that Canada can 'go alone', and in certain markets such as basic services, provide a different structure of prices than in the United States. If Canada were to have higher relative prices between toll and local services within Canada, then long-distance users would be taxed. A specific commodity tax like this can be different in each country and is different from many other commodities. It would be harmful to Canada if the tax raised the costs

of doing certain kinds of so that these businesses felt compelled to migrate to the United States. It is unclear which services are so dependent on telecommunications lines that they would migrate because of these taxes. The authors are on firmer ground in suggesting that equipment costs must be identical between the two countries since migration is possible and important for many users of those services (for example, the production of software).

The authors occasionally attempt to 'shoehorn' the Canadian facts into their hypotheses. Sometimes the shoe does not quite fit. They suggest that Bell Canada and BC Telephone are comparatively lower-cost suppliers, have some multinational corporate interests, and are therefore more accepting of competition than other telephone firms within Canada. Until the last few years this statement would have appeared odd. First, as stated above, it is not obvious that Bell Canada and especially BC Telephone are lower-cost producers than their provincial counterparts. Second, both Bell Canada and BC Telephone have vociferously fought the introduction of competition in any phase of their services. The authors' claim that telephone users in Canada can purchase any equipment that they see fit is correct, but this option is much more recent than in the United States.⁴

Turning to enhanced services or value-added networks (VANS), the authors suggest that the higher costs of transmission and equipment 'prevent exploitation of Canada's lower labour costs', and this would mean that VANS would not develop to their fullest extent. It is not evident that labour is an important input to VANS, nor is it clear why equipment is higher priced in Canada than in the United States. Transmission is probably not a major component of the costs of VANS. Moreover, as the authors point out, the second and seventh largest database companies in the world are Canadian and therefore do not appear to be hurt by present policies. There are also, of course, important cultural and political constraints on the free movement of data across any border where the data could be used in a foreign jurisdiction to the detriment of nationals in the other jurisdiction and where the data could be subject to foreign government control.

Cowhey and Aronson's model does predict what has occurred. Large, well-organized customers have had a major impact on policy, costs are being lowered for their inputs such as basic service, revenues are being protected for local telephone companies, and residential customers are being protected from the real costs of competition.

Cowhey and Aronson suggest that the losers could be small- and medium-sized users. Large firms will be able to negotiate special deals or have services reflect their bargaining position, but the small and medium users may have to bear the cross-subsidies necessary to keep local rates low. The authors suggest that decisions about VANS are the most significant set of choices to be made today. Limits on attempts to lower costs put far more pressure on the desires to bypass and on equipment suppliers. The authors conclude that freer trade in telecommunications and data processing between the two countries would force a major reorganization of other telecommunications markets. I do not agree with this conclusion. Freer trade negates or lowers the reasons for bypass as it lowers the costs of operation in Canada. In addition, if the only differential between US and Canadian costs would be a different structure of telecommunications rates for basic services, I think that these could be maintained without significant and important costs to Canadian society.

NOTES

- 1 The paper suggests that federal authority over certain telecommunications firms is divided between the CRTC and the Department of Communications (DOC). While the CRTC is a regulatory body, the DOC is a policy-setting body and has no direct jurisdiction over telecommunications firms.
- 2 The pattern of federal regulation is largely the result of historical accident – BC Telephone and Bell Canada obtained federal rather than provincial corporate charters.
- 3 The suggestion that follows that the large US-based data-processing-equipment manufacturers support more competition and argue for lower tariffs also seems surprising since tariffs are so low.
- 4 The Carterfone decision in 1968 provided Americans with the ability to replace telephone company equipment with company equipment. This did not occur in Canada until at least a decade later.

Comments

R.G. Logan

IBM Canada Limited, Markham, Ontario

Surprisingly, in 1983, in the midst of a review of possible bilateral trade negotiations between Canada and the United States, focusing on such things as trade in steel and agricultural products, the Royal Bank, with the assistance of Rodney Grey, initiated a discussion into trade in computer services. I say surprisingly because discussions to that point had centred on trade in goods and here we were raising services – a field that had received little attention either multilaterally or bilaterally. It seemed to me in the private sector that both governments were caught a little by surprise.

However, this should not have been a surprise. The subject of transborder data flows has been discussed and analysed in Canada for many years. While discussions on this subject in Europe had concentrated on privacy and sovereignty, in Canada the concern focused on economics – that is, loss of jobs to the United States. Industry, for its part, felt that transborder data flow was an essential tool for conducting business. The strategy of business, therefore, was to encourage the federal government to form an interdepartmental committee to ensure the broadest possible focus on the issue. Consequently such a committee was struck. After considerable activity and consultation no consensus was achieved, no policy was issued, and the interdepartmental committee quietly disbanded. They did, however, publish some of their findings, including the following:

There is much evidence to show that use of computer/communications and the ability to transmit data quickly and easily have resulted in substantial gains in the production and

market performance of multinational corporations. In the continuous drive for improved efficiency and effectiveness to meet competitive pressures and promote growth, use of the new information technologies has become a critical element in maintaining a corporate market presence.

And further,

It is clear that few companies could survive in the current highly competitive and volatile marketplace without having the necessary information and the computer/communications technology that facilitates its use and management.

While there was no move to regulate transborder flows, there also were no guarantees that some action might not be initiated at a later date. It was in this vacuum that the Royal Bank launched their initiative.

From a Canadian businessman's point of view, the result of the Royal Bank's initiative has been somewhat disturbing. The US trade representative's office immediately called together their Industry Sector Advisory Committee (ISAC) to obtain an industry point of view. In Canada no such consulting mechanism existed then or, for that matter, now. Position papers by both External Affairs and the Department of Regional and Industrial Expansion (DRIE) have been prepared and are being discussed, but we in business have not been consulted on their contents.

This is a complex issue and definitions become very critical. What is included in trade in computer services? Does this include trade in computer hardware? Rodney Grey has suggested that any bilateral or multilateral negotiation must include trade in goods as well as services to ensure services produced in Canada are competitive with those produced in the United States.

We agree with this, but on the other hand we would strongly recommend that the definition not be expanded to include the whole array of information services that impact on Canada's cultural heritage. Because of continuing changes in technology and the fact that we are also dealing with a global phenomenon, it would seem absolutely imperative that business, with its international perspective, be consulted. Indeed, we have recommended to the

Canadian government that advisory groups be established to work with the Department of External Affairs.

However, that addresses only one aspect of this issue – that is, providing domestic governments with an increased global view. There still remains the need for governments to agree on a focal point for trade in services similar to trade in goods. If we can agree with Feketekuty and Aronson that we have entered into 'the world information economy', then we had better start stepping up to the policy implications of this. In their paper presented last year (1983) they stated:

Some argue that changes in technology are so rapid and the issues confronting governments are so undefined that it makes sense to wait before developing new international rules in this area. Since governments are inherently conservative, it is argued, they will try to protect themselves from all kinds of possible eventualities. The outcomes could easily be a set of rules that are even more restrictive than current practices.

I think it was this kind of concern that prompted the paper by the Royal Bank. The international service sector has built vast information networks over the years to serve their business needs, and any attempts to dismantle or curtail these networks could result in economic chaos for a nation. Indeed, by restricting international information flows, we would restrict the capacity of the global economy at a time when demographic and political pressures on resources demand they be employed with maximum efficiency. The growing economic interdependence cannot be overlooked. As many of you are aware, a royal commission in Canada is currently examining the long-term economic prospects for Canada. I found it incredible that the Macdonald Commission's preliminary report made no reference to the increasing interdependent economic environment and the importance of computer/communications technologies in our future economy.

I do not want to launch into a company sales pitch at this point because I agree with Rod Grey's thesis that the user of these technologies be considered first and the manufacturer last. However, we at IBM Canada are one of our best customers in the use of our technology – indeed, we ranked in the top five telecommunications service users in 1983. As well, after the federal government, we have

the largest tie-line network in the country. The major portion of our transborder data flow is the exchange of information required merely to maintain the ongoing day-to-day operations of our company.

To illustrate the importance of these flows of information let me describe just a few examples. In manufacturing, our two Canadian plants are rationalized – that is, they are responsible for selected specialized missions with the resulting products being shipped around the world. The products manufactured by the plants must be integrated with other products manufactured in other countries to produce a complete system. Without a guarantee that our Canadian operations can access information from other IBM manufacturing locations around the world, we clearly cannot attract or retain these specialized product missions. Similarly, our Canadian research and development (R&D) laboratory, which is among the top ten R&D facilities in Canada, would be closed down without assured access to international information. Furthermore, our ability to maintain our own computers as well as customers' computers would also be severely affected by any restrictions – our service personnel have access to a worldwide information network that records all machine failures around the world and the program solutions required to resolve the problem. Finally, our ability to deliver education, which provides significant technology transfer to Canada, would be critically affected by any restrictions on information flows. These education sources depend on access to the technical-information data bases located around the world.

Indeed, within the IBM corporation approximately 1,000 large-scale computers are interconnected, allowing IBM personnel in over 130 countries to exchange ideas and help keep our operations in each country internationally competitive. I hope this brief perspective of IBM Canada as a major user of information services that are worldwide in scope will underline the importance of transborder information flows to us.

In the same way these information flows are central to any company doing business across national borders. The rapid technological changes, the interconnection of communications networks, and the introduction of satellite-based systems calls for a reappraisal, in an economic sense, of the role of national boundaries in an information age.

As stated in a recently published study on transborder data flows by the Conference Board, 'the basic concern of governments is clear: on the one hand, advanced technology is useful, needed and desired, on the other, this technology ignores national boundaries and appears to be a potential threat to the sovereignty of nations and their governments as they presently exist'.

Further to that, as pointed out in the Feketekuty/Aronson (1983) paper 'most service industries and particularly most communications companies are highly regulated by national governments because the services they supply are perceived as vital to national sovereignty and security'.

We are faced not only with governments who perceive the free flow of information as potentially threatening to their national domains, but must contend with the fact that there are no international organizations equipped to handle this issue. As stated by Feketekuty/Aronson, there 'is no existing international institution equipped to sort out the commercial and regulatory issues in a manner consistent with a liberal economic order for the world information economy'.

What then are our options? I see this as a unique opportunity for business to take a leading role in helping national governments and international organizations come to grips with the complexities involved with the trade of computer services. This is the time for business to take the lead in initiating dialogue between governments and between business and government. It is from within the private sector that new jobs will be created – but this can only be the case if the economic environment allows companies to compete on a global scale. This is the case that must be made to national governments.

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Technology transfer and Canada's competitive performance

Donald J. Daly

Faculty of Administrative Studies, York University

Canada continues to be a high-cost, low-productivity producer of manufactured products in relation to other countries, in spite of the increases in plant size and production runs that have occurred in the 1970s. The increase in output per hour in 1983 after the severe 1981-2 recession does not modify that picture. Although there are a growing number of firms and industries who have become successful exporters, there are still a large number of plants and firms for whom this is not yet true. Manufacturing is not generally an area of comparative advantage for Canada in a broader international perspective.

Manufacturing continues to be fairly important in terms of output and employment. Manufacturing was about 21 per cent of gross domestic product (GDP) at factor cost in 1981, down slightly from earlier decades, but both exports and imports of manufactured products are large and growing in relation to domestic production. For example, exports of manufactured products had grown from less than 20 per cent of domestic shipments in the middle 1960s to over 30 per cent in the late 1970s and early 1980s.

Trade in manufactured products has been the most rapidly growing sector in world trade since the Second World War, with international trade tending to grow more rapidly than either domestic production or domestic consumption of manufactured products in most countries and trading regions. To an important degree this reflects the increased amount of intraindustry trade that has been developing in many industry and commodity groups and in many countries.

However, when Canada tends to be a high-cost producer of manufactured products, one should not be surprised if the Canadian share of the world market for many product groups has fallen.

A further important point is the high and increased interdependence between the Canadian and US economies. This is reflected in the dominant share of trade with the United States in exports and imports, both for merchandise trade and trade in services. Beyond such basic statistics lies the fundamental fact that North America is a common economic entity, and the two economies basically move together in terms of macroperformance. If there are differences, the task of the analyst is to explain why such differences occur.

There is also a significant amount of US ownership of Canadian industry, a fact that is widely recognized. However, there are several other developments over the last decade that are less widely known. One is that the Canadian share of US direct investment has been declining for many years, partly with the more rapid growth in the European market. In 1967, more than 25 per cent of the stock of direct investment from the developed market economies was in Canada, but by the late 1970s, the Canadian share of inward direct investment flows to the developed market economies had dropped to about 3 per cent. US direct investment has also been falling slightly as a share of the Canadian market. An even more striking development is the rapid growth in Canadian direct investment in the United States, amounting to an annual rate of growth of over 25 per cent from 1975 to 1980. Our interest in this paper, however, is more on the *effects* of foreign direct investment in Canada on performance and technology transfer.

CANADA'S INTERNATIONAL COST COMPETITIVENESS

It has been clear for more than a decade and a half that the levels of output per hour in a wide range of individual manufacturing industries are lower in Canada than in the comparable industries in the United States. The last fairly comprehensive survey, done by staff of the Conference Board in Canada, was for 1974 and this showed, a fair amount of variation around the mean for manufacturing in total, a pattern that was similar for comparable studies for fifteen pairs of

country comparisons. For 1974 the average level of real net output per employee was about 23 per cent below that for the United States, a narrower gap than in earlier decades.¹ From 1974 to 1983, however, the rate of increase in output per hour in Canada has been slower than in the United States, so the gap for total manufacturing appears to have widened to about 28 per cent. During the 1970s, there has been an increase in both average plant size and the length of production runs and an increase in output in relation to both labour and capital inputs in Canada.² There has also been an increase in both exports and imports of a wide range of manufactured products, reflecting the increased importance of intraindustry trade. The levels of output per hour dropped during the recession in both the United States and Canada, but the increases in 1983 were dramatic in both countries (especially in Canada), although the longer-term gap continues to persist as it has since the 1930s.

One can also make a comparison of labour costs per unit of output between Canada and the United States. For example, total compensation per hour (including fringe benefits) for production workers in Canada was about 7 per cent below the US level at the average 1983 exchange rate. The difference of the compensation per hour relative to the difference in output per hour suggests that the level of labour costs in Canada was about 29 per cent higher than in the United States – a dramatic indication of the order of magnitude of the problems of cost competitiveness in relation to our major market and supplier.

This research has emphasized labour costs, as it is the most important element in costs for total manufacturing. In 1981, for example, total labour income was almost two-thirds of gross domestic product in manufacturing. (Labour income for an individual firm or industry normally appears as a much smaller proportion of company or industry costs. This is because purchased materials and services include indirectly an important element of labour costs that are eliminated when the large and growing role of interindustry trade is not taken into account.) Depreciation is another cost factor in gross domestic product at factor cost, and this is a larger component of factor cost in Canada than in the United States. In other words, an estimate of total factor cost per unit of output for Canada would be even more

above the US level than the 29 per cent higher level of labour cost referred to in the previous paragraph.

A wide variety of factors have been put forth as contributing reasons for this long-standing structural difference, but I doubt if any one factor is an adequate explanation for the differences. The presence of tariffs and nontariff barriers to trade and the resulting effects on smaller plant sizes and short runs is the most widely researched and accepted interpretation for this difference.³ It is also widely accepted that the available evidence indicates that new products and new processes are usually introduced in Canada later than in other countries, and that the diffusion of such new technologies within Canada has been slower than in other countries.⁴ This topic will be discussed more fully in a later section.

Although the primary focus of this paper is on Canada/US relations, it may be useful to put the comparative cost position of North America into a broader comparison with some of the other major industrialized countries. This can be seen for unit labour costs for total manufacturing for 1983. Table 1 shows that only the United Kingdom had higher unit labour costs than Canada, based on the differences then prevailing in total compensation per hour, exchange rates, and real output per hour.

Japan had the lowest level of unit labour costs, reflecting compensation per hour about half the US level and output per hour that is now within 20 per cent of US levels. Unit labour costs in Japan were roughly 40 per cent below US levels and half the level in Canada, a dramatic difference. By 1983, Japan's level of output per hour exceeded Canada and most of the countries in the European Economic Community. The rate of increase in output per hour was so much more rapid than in the other industrialized countries that it had moved from the lowest of the nine countries shown in 1955 to the third highest. Although the rate of increase in Japan has slowed down since 1974, the rate of growth in output per hour has continued to be the most rapid of the countries shown over the last decade. Furthermore, the rate of increase in real hourly wages in Japanese manufacturing (total compensation per hour divided by the consumer price index) was only about one-fifth the increase in real output per hour in Japanese

TABLE 1

Labour costs per unit, manufacturing, selected countries, 1983 (United States = 100.0)

United Kingdom	136.0
Canada	129.3
Italy	107.2
Belgium	106.3
United States	100.0
Germany	92.3
France	86.5
Sweden	73.3
Japan	61.2

NOTES: These estimates incorporate the net effects of output per hour in real terms, total compensation per hour, and the 1983 exchange rates. This covers a major part of costs for GDP in manufacturing, and costs per unit for capital and depreciation can be approximated for some countries. The results are updates of the methods used in D.J. Daly (1979) *Canada's Comparative Advantage* (Ottawa: Economic Council of Canada); A.D. Roy (1982) 'Labour productivity in 1980: an international comparison'. *National Institute Economic Review*, 35 (August); updated by US Bureau of Labor Statistics (1984) 'International comparisons of manufacturing productivity and labor cost trends, preliminary measures for 1983'. *News*, 31 May.

manufacturing. By far the largest part of the increase in output per hour was passed to the buyers of manufactured products domestically and internationally, rather than accruing to workers in manufacturing within Japan.⁵

In his comments on the paper, Gary Saxonhouse raised the role of macro-policy in the contrasting experience of Japan and North America. The Japanese government has clearly been more successful in controlling the increases in prices and compensation per hour as compared to the United States and Canada. I would also agree that high and variable rates of inflation can have an adverse effect on productivity growth. However, Saxonhouse goes too far in suggesting that Japanese management is irrelevant to an explanation of the decline in unit labour costs and the rapid increase in output per hour since 1975 when Japanese management practices are so important in these developments. For example, from 1973 to 1983 the increases in compensation per hour were almost identical in Japan and the United States. However, the increases in output per hour have been so much

greater in Japan than in North America that unit labour costs both in domestic currencies and in US dollars are *lower* in Japan as compared to the middle 1970s, while the comparable measures for the United States and Canada have more than doubled between 1974 and 1983. I think it is important to recognize that there is more to this contrast in experience than macromanagement. An understanding of macro-policy performance is a necessary part of the story, but I would not agree that it is sufficient.

The position of the individual European countries varied, with France, Germany, and Sweden moderately below the United States, and Belgium and Italy moderately above. Only the United Kingdom was well out of line above the others. This was a significant change from 1980, when all the European countries were well above the United States, but the marked drop in their exchange rates relative to the US dollar brought their unit labour costs much more in line with the United States than they had been for a decade.

The magnitude of the cost differences between Canada and the United States poses three challenges for business, labour, and government in Canada. How can productivity levels be increased to close the existing gap? What steps are necessary to sustain continued increases in output per hour more in line with those taking place in the other industrialized countries? In addition, a much larger part of the increases in output per hour must be passed along to the buyers in the form of price reductions for manufactured products, rather than accruing to workers in manufacturing as in the past decade.

By 1983, it would appear that real wages per hour in Canadian manufacturing were about 15 per cent below the United States,⁶ while real manufacturing output per hour was almost 30 per cent lower. Such a difference may have been sustainable when Canada had a strong comparative advantage in natural resource products, when there was a significant degree of protection for Canadian industry, and when there was a pressure of demand against capacity in manufactured products in world markets. Most of these factors have now gone or are going, and corporate rates of return in manufacturing in Canada have dropped well below returns estimated on a comparable basis in the United States and Japan.⁷

The role of technology transfer in these productivity and cost differences will be examined later in this survey.

OWNERSHIP AND PERFORMANCE

The last section emphasized Canada/US differences in performance as measured by data on output per hour and unit labour costs (with some comparisons to put North America into perspective with Japan and some of the major European economies). This section will examine differences within Canadian manufacturing, concentrating on differences in performance. The purpose of this section is to correct the misconception that attributes poor productivity performance in Canada to foreign ownership and control.

The classic and still the most comprehensive surveys are A.E. Safarian's 1966 volume and the shorter 1969 study, which covered management, exports, imports, transfer of knowledge, production costs, and other aspects of performance. For our purposes, one important and widely recognized conclusion was that the average size of US-controlled enterprises was substantially larger than the average manufacturing enterprises as measured by employment, salaries and wages, value-added, and selling value of factory shipments. Another important finding was that the foreign-owned enterprises had above-average levels of salaries and wages, value-added, and factory shipments, after standardizing by employment. Another point was that the differences between the US-owned and Canadian-owned establishments were smaller for the larger enterprises (that is, more than \$25 million Canadian investment in Canada) than for all enterprises.⁸ The implication was that the US-owned enterprises were more productive than Canadian-owned ones, but with the data then available it was not possible to allow for size, industry, and ownership differences simultaneously.

Safarian also pointed out that his results for Canada were in line with studies by Dunning for the United Kingdom and Brash for Australia. Dunning found that the productivity of a selection of US-owned firms was 18 per cent above their British competitors, and that the difference reflected superior efficiency rather than industrial composition of the two groups. In Australia, the value of production per person employed was about 36 per cent higher than Australian industry generally. These differences appeared to reflect a combination of firm size, the use of modern techniques of management, and more machinery per employee.⁹

A study of the Indian pharmaceutical industry is also important. It emphasized differences in managerial practices for a range of companies, with emphasis on traditional managerial practices at one extreme and largely Americanized practices at the other. The measures of performance at the firm level included such variables as growth in sales and earnings per share, a number of measures of profits and rates of return, and sales and net profit per employee. The resulting composite measures showed much higher relative economic success for the Americanized firms than those following traditional Indian management practices. The most successful companies, however, were ones that incorporated some elements of local practices and were sensitive to local values and customs. The major theme is that managerial practices were central in performance, rather than ownership per se.¹⁰

In recent years, the practice by Statistics Canada of providing special tabulations of the basic statistical returns for research purposes has considerably increased our information on performance. It has now become possible to standardize by industry, size, and ownership simultaneously, but without violating the concept of confidentiality under the Statistics Act. This was done by D.C. MacCharles in his PhD dissertation for the University of Toronto. The data indicated that the levels of value-added per employee were significantly less for small Canadian-owned plants and firms than for the foreign-owned organizations in the same industry and size group. However, the differences between the Canadian-owned and US-owned organizations had levels of value-added per employee that were half or less than the foreign-controlled organizations, while the larger Canadian-owned organizations were roughly comparable. This is illustrated on the basis of establishment data in Table 2, but the results for company data were similar.¹¹

Studies based on more disaggregated data than previously available have indicated that the product diversity apparent in earlier years has diminished, especially in Canadian-owned establishments. By 1979, the earlier greater product diversity in the Canadian-owned establishments than in the subsidiaries had been considerably diminished. There has also been a significant increase in intra-industry trade especially for the Canadian-owned establishments.¹² It is possible that some narrowing in the differences in net value-

TABLE 2

Selected comparisons between sectors of control, plant-level data for 1974, manufacturing sector

Plant size measured in employees	Value-added/ production worker (ratio Cdn. to fgn.)	Percentage of sales	
		Cdn.	Fgn.
Fewer than 50	.50	19	5
50 to 200	.67		
200 to 400	.75	23	53
Greater than 400	1.00		

SOURCES: Daly and MacCharles, *op. cit.*, in footnote 35. Statistics Canada, various publications.

added per employee has begun to occur since the last comparison was made for 1974, but this point has not yet been researched. If some important differences in productivity still persist in spite of the reduction in the differences in the extent of product diversity, this would suggest that differences in other characteristics such as management and the use of best practice technology have also been important in the historical differences within Canadian manufacturing.

THE ROLE OF TECHNOLOGY IN PERFORMANCE

There is no question that technological developments in the broadest sense have been important in the major increases in real output per capita and living standards that have taken place in all the major industrialized countries over the last two or three centuries. Although there has been a significant increase in real capital per person employed, it would also be agreed that the increases in output have been greater than in aggregate measures of multifactor input. Some of these increases in output in relation to various measures of multifactor input (or total factor input) are associated with inter-industry shifts and economies of scale, but an important part of the

remainder could be regarded as being associated with knowledge and the diffusion of new technology.¹³ Although one can learn quite a bit about economic growth and differences between countries from aggregative data and associated measures at the industry level, such approaches can explain only part of the story.

It is also useful to see what light can be thrown on these issues using the tools of management and corporate strategy, especially the role of natural science and engineering technology in performance at the level of the firm. There is no question that the natural science and engineering disciplines have an important contribution to make. The role of steam, electricity, and the internal combustion engine as sources of power, light, and locomotion are all important in the changing economic performance in North America since the middle of the nineteenth century. Some current examples are robots, computers, lasers, and fibre optics. The development of the basic scientific technology and the successful manufacture of such products at lower cost is a necessary part of the story. The scientific and 'hardware' aspects of technology are not sufficient, however, for successful implementation and use of the technology on a widespread basis.

A second necessary element is the related organizational aspects of openness to change, morale, motivation, and so on that are built on psychology and sociology as applied to organizations. Previous research by economists has shown long lags in the adoption of new technology (both new products and new processes of producing previous technology) and variation in the length of these lags between countries. Comprehensive statistical studies of individual plants and firms and studies by behavioural scientists and students of management indicate tremendous differences in incomes and output per employee within the same industry.¹⁴ Such differences persist for extended periods, but there is also considerable dynamism as new organizations enter and older ones exit. Some organizations can improve their relative position with new management, and other well-managed companies can slip in relative performance. Many observers would not have expected Chrysler to experience the rebirth that it has in recent years, and few people in Detroit would have predicted two decades ago that the Japanese auto producers would make the inroads into the North American market for small and intermediate cars with

priority on quality, use of robotics in assembly, plant layout, and inventory control, and low cost that has been achieved by the 1980s.¹⁵

A third important element within organizations is a management information system that provides management at all levels of the organization with the information it needs on a current basis for decision making, and is also used to monitor and control performance within the organization. Such information could include personnel records, pay, performance, future training needs, promotion potential, and so on. Another area would be managerial accounting records on per unit costs and how per unit costs would be affected by increased volume. Inventory control is another area, and businesses in Canada and Japan have been able to reduce inventory-sales ratios in manufacturing and trade by improved inventory records and improved inventory and production management, including computerization. Higher interest rates and pressures on profit margins have put pressure on organizations to speed up the implementation of these practices. When the annual costs of holding inventories are up to 20 and 30 per cent of inventory values, any steps that can reduce those costs are worth consideration by management. Incidentally, land costs are a trivial part of inventory costs in Canada, but control of inventory costs are still desirable.

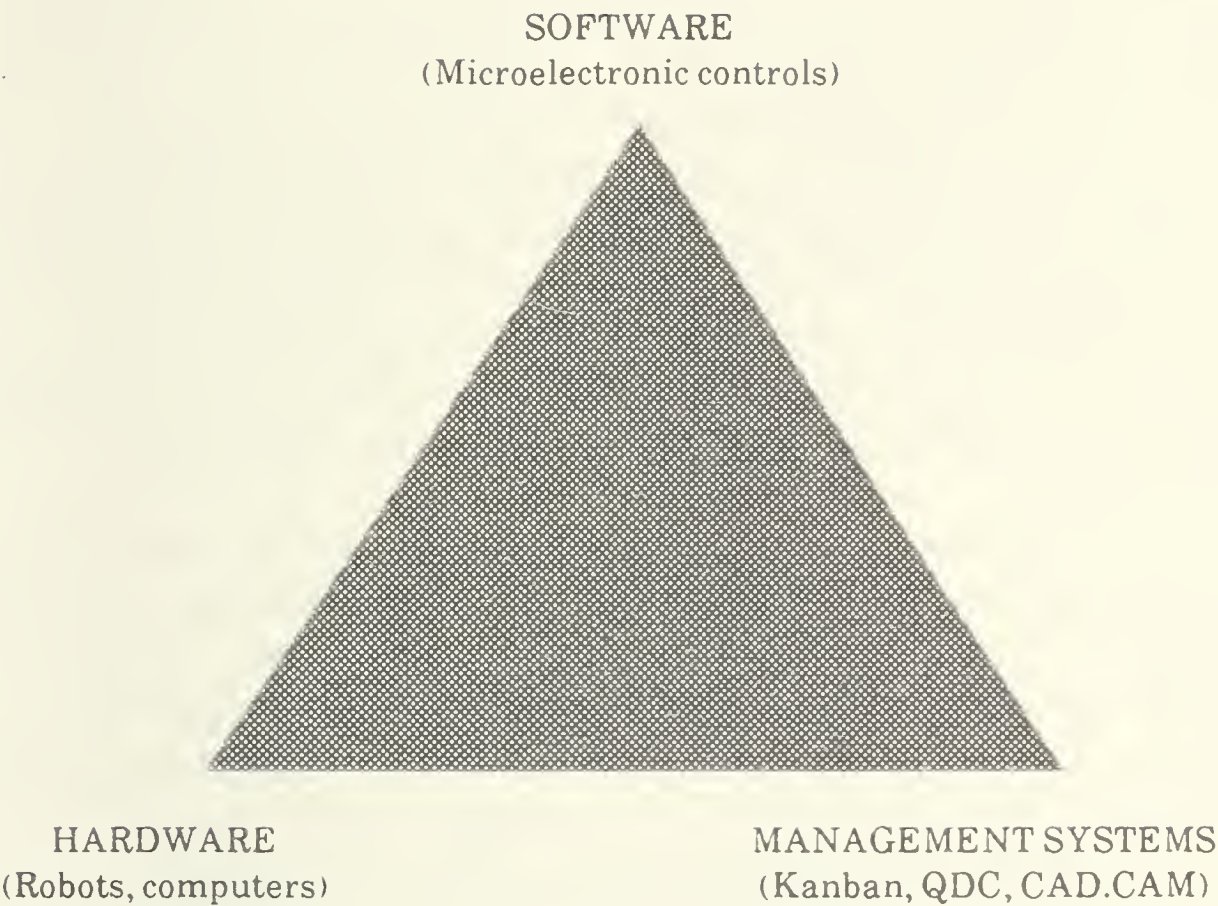
The three important dimensions of corporate managerial practices are illustrated in Figure 1, which was prepared to illustrate office automation; the same three areas are fully applicable to manufacturing.¹⁶ The really effective development and implementation of new technology in organizations to achieve maximum profits and market penetration on a long-term basis requires careful attention to all three of these dimensions rather than only one.

It would be just as important in assessing public policy to look at all three of these dimensions rather than only one. This will be explored further in the last section of this paper.

There has been quite a bit of popular discussion in recent years about high technology. It is sometimes suggested that the development of high technology industries should be encouraged, while other low technology industries should be discouraged.

What this discussion misses is that high technology processes can be applied in *any* industry. There is a long tradition of scientific agriculture in North America that applies sophisticated research me-

FIGURE 1
The automation triangle



thods to fertilizers, new strains of crops (such as wheat and corn) and new varieties of livestock, chickens, etc. Computer-assisted design and computer-assisted manufacturing can be applied to such traditional and mature industries as textiles and footwear. And the personal computer is beginning to have an effect on such labour-intensive industries as research manuscripts. Word-processing machines and high-speed printers are making the typing of handwritten manuscripts a high-cost operation. Cost reductions of 20 per cent a year will make the use of computers increasingly attractive to individuals and organizations.

CANADIAN EXPERIENCE IN THE DEVELOPMENT AND USE OF NEW TECHNOLOGY

In considering new technology, it is crucial to distinguish between the development and the use of new technology. The development side can include basic scientific discoveries and subsequent innovations. Once the new technology has been developed, so that it is both technically successful and can be produced economically and marketed profitably, there is a later stage of diffusion that includes how quickly it is first introduced in other countries and how quickly it is used by, say, half the plants in the using industry. The engineering and scientific aspects are important in the initial invention stage, but the behavioural sciences and their application to the sources of change and resistance to change in organization are important in the diffusion process.

I would hypothesize that the *initial* development of new technology could be slow, risky, and expensive. Some evidence on the lags between the initial major invention and the innovation, compiled by Gerhard Mensch, suggests that these lags can be as short as a decade or as long as a century. For more than a hundred major inventions over the last century and a half, the average lag from invention to innovation was 45 years.¹⁷ New types of knowledge do not always lead to technically successful production, and only a small proportion of the technically successful also meet the market test of profitable production. Furthermore, many important technological developments occur as an accidental byproduct of researchers working on something quite different. Many of these steps can become expensive as well as risky. For some types of research a minimum-size team is necessary to have all the areas of skills and expertise that a complex project may involve. In some cases, only quite large corporations have the people, resources, and cash flow needed to implement large technology projects. At the same time, some small organizations can make successful breakthroughs with a combination of ingenuity, hard work, and luck. Patents can sometimes protect the first inventor, but these eventually run out. Modifications and adaptations can sometimes lead to another patentable product that can provide a comparable service and capture an important market share.

However, once the initial technological developments have been made, the marginal costs of a company implementing the project can be relatively low and the gains can be quite high. Producers of machinery in durable manufacturing are anxious to provide the buyer with technical advice and help on how to use the new technology embodied in the latest machine. An early study showed that this diffusion process was more rapid in durable than in nondurable manufacturing.¹⁸ The same thing is happening in the small-computer field. The advertisements in the financial pages announce regular demonstration sessions for potential buyers of small computers. The micro chip has led to small-and low-cost computers, but the large computer companies had been working for about four decades to develop the present 'hardware' and the price reductions that have taken place.

For a small country like Canada, individual firms have the option of 'making' or 'buying' the new technology. What can one say about the Canadian experience in these respects? On the basis of the available data and the research that has been done, three conclusions can be drawn.

1 A dominant part of the new technology and inventions in Canada have been developed initially elsewhere. This is reflected in patent statistics, for example, where only about 7 per cent of the patents granted in Canada are to Canadian residents. More than three-fifths of the patents are issued to residents of the United States.¹⁹ One shouldn't be too surprised at this, as the Canadian population of 24 million in 1980 was less than 4 per cent of the population of more than 650 million people in the Organization for Economic Co-operation and Development (OECD) industrialized countries (covering North America, Japan, and Northwest Europe). The high reliance on imported technology is also reflected in payments for research and development and other technological payments abroad that usually run between three and four times receipts from abroad.²⁰

2 Canadians have been successful in making many important technological developments, but a high proportion of these have been first produced commercially elsewhere, principally in the United States.²¹ This again is not surprising. There are likely to be larger

profits and less marketing risks in a large market than a small market and more opportunities to take advantage of the potential economies of scale in a large market.²²

3 In Canada, there is usually a longer lag from the first introduction of a new process to an industry until it is used by half the plants in that industry than the length of the diffusion process in the United States and elsewhere. This was the experience in the use of special felt presses to reduce water content in the manufacture of pulp and paper, the use of tufting machinery in the manufacture of synthetic carpeting, and the use of numerical control in the tool-and-die industry.²³ There have also been press reports that the proportion of manufacturing firms using computers in Canada is about half the proportion in the United States. One of the few documented exceptions to the pattern of slower diffusion of new technology in Canada in manufacturing than in the United States was the use of the basic oxygen process for the manufacture of steel.²⁴

A number of factors seem to have contributed to this tendency for the slower adoption of new technology in Canadian than in US manufacturing. It would be widely accepted that the degree of tariff protection historically and the higher degree of corporate concentration have contributed to less competitive pressure in Canada. Competitive pressure, though, is usually regarded as important in the fast adoption of new technology. The role of Japanese competition in the European bearing industry was an important factor in introducing changes in that industry some years after complete free trade in industrial products within Europe had been achieved.²⁵ If the organizational costs of introducing new products are about the same in large and small countries, the returns could very well be less in Canada than in the United States due to the smaller market size. There is also some data that indicate fairly clearly that the levels of formal education of managers in Canada tend to be lower than in the United States (reflecting the lower proportion of Canadians who go to university) and that Canadian managers tend to move into middle and senior management levels later in their working life. As there tends to be more openness to change and new ideas with younger persons and those with a higher level of formal education, Canadian

There have also been studies by sociologists and political scientists that point to the emphasis on continuity and gradual change in Canadian history and the greater role of the élite in Canada. On the other hand, the United States tends to take pride in rapid and even revolutionary change, the role of performance rather than family status in managerial selection and performance, and a greater openness to new ideas.²⁷ The economic and social upheavals in continental Western Europe and Japan and the emergence of new business and financial leadership and increased international competition have led to more innovative leadership and faster adoption of new technology in those countries than in Canada (and the United Kingdom). The absence of a radical shake-up in the US economic and social structure may have led to the significant erosion of the leadership that the United States had at the end of the Second World War. One of the big questions for the 1980s and 1990s is whether the increased international competition from Japan, Western Europe, and some of the newly industrialized countries (NICs) will lead to a successful industrial renaissance in the United States.

What can one say in aggregate terms about the relative size of purchased technology compared to domestically produced research and development (R&D)? One important but rarely cited study by the Ministry of State for Science and Technology suggests that the amount of actual R&D performed or bought in Canada annually is small compared to the amount available for use domestically.²⁸ The Corporation and Labour Unions Returns Act (CALURA) listings of payments to nonresidents (including patents of invention, industrial design, other royalties and similar payments, scientific research, and product-and process-development research) total almost as much as domestic expenditures by foreign-controlled companies. Domestic expenditures by subsidiaries in Canada on R&D was a bit less than one-fourth of the 'national R&D' available to them (on the assumption that the level of R&D needed to support the subsidiary's sales is proportional to the proportion of the parent's sales). A summary of the ratio of Canadian R&D expenditures to GDP in manufacturing is shown in Table 3.

The inclusion of 'invisible' R&D (both purchased and available) more than doubles the Canadian share and moves the relative size of R&D in

TABLE 3
 International comparison of industrial R&D expenditures as a proportion of gross domestic product in manufacturing, 1973

	R&D spending as a proportion of manufacturing GDP %
Canada, excluding invisible R&D	2.00
Canada, including invisible R&D	4.28
Australia	2.29
Scandinavia (total)	2.92
France	3.14
Germany	3.19
Japan	3.16
United Kingdom	4.66
United States	6.45

SOURCE: Ministry of State for Science and Technology (1978) *Importation of Invisible Research and Development, 1974-1976* (Ottawa: Background Paper No. 3) 10 (July).

manufacturing from the lowest to one of the highest, behind only the United States and the United Kingdom. These data would suggest that access to natural science and engineering technology is not the central problem in poor performance in the use of best-practice technology.

A further important point is that it is easier to transfer such new technology from a parent to a subsidiary than it is to transfer it on an arm's-length basis between two independent companies. This is especially so for relatively new technologies and in industries that are research-intensive (as reflected in high ratios of R&D to sales).²⁹ There is some evidence that the proportion of internal transfers between affiliated companies has fallen since 1970 and that arm's-length transfers have correspondingly increased. This reflects the increased competition that has emerged internationally with the widespread reduction in tariff and nontariff barriers and the emergence of new low-cost producers. There has been a significant amount of transfer of high technology products from the industrialized countries to the countries in Eastern Europe and the developing countries, and many of these seemed to be between nonaffiliated companies. It is

important, however, for the country selling the technology to provide an adequate degree of training and supervision of the transfer, especially in the early stages.³⁰ There are also differences in the lag of the transfer of technology abroad behind its first introduction by a US-based firm. There was a mean lag for the transfer to the subsidiaries in developed countries of six years, of ten years to a subsidiary in the developing countries, and thirteen years for transfers to joint ventures or through licences on an arm's-length basis.³¹ However, the costs of transferring a new production process to the receiving firm can be high, averaging 19 per cent of the total costs for that project to the receiving firm, with a considerable range around that average cost.³²

It is generally agreed that these technology transfers have a positive effect on the country receiving the technology. A transfer of a new product makes more kinds of goods available for consumption, thereby leading to a higher level of utility. The transfer of process technology would lead to lower nominal and real costs of producing the same (or similar) good, and this would lead to higher real incomes in the country receiving the technology. When there are economies of scale in producing new technology, a small country can obtain such new technology at a price close to the marginal cost of the transfer rather than the total cost of developing the new technology. The average cost per unit of producing new technology will typically be less if it is produced in a large market than in a small market.³³

One potential limitation on the heavy reliance by a small country on the purchase of new technology from abroad might be noted. The foreign parent or the foreign licensor may specify certain limitations on the export of that product in the home market. There is no doubt that such limitations are specified in certain instances, but the last known comprehensive study was included in the Gray Report. It provided data on almost 800 US-controlled companies and additional companies controlled in other countries. The largest number of companies in any category reported no limitations on exports and only 2 per cent of the US-controlled companies and 5 per cent of other firms reported no exports allowed.³⁴ A recent survey of smaller companies in manufacturing found only a small proportion of subsidiaries where export limitations initiated by the parents were reported. There were a few Canadian-owned companies which licensed technology from foreign companies on an arm's-length basis reporting limitations on

exports as a condition under the licensing arrangement. A far more important factor limiting exports of manufactured products by both subsidiaries of multinationals and independent Canadian companies was the lack of cost competitiveness,³⁵ a theme outlined in the early pages of this survey.

It may be useful to contrast the Japanese practices with respect to the importation of new technology both in the natural science and engineering fields and in the managerial and organization area. Japan has an active program of closely monitoring new technological developments all over the world and disseminating those ideas quickly to potentially interested companies. During the period of rapid growth in Japan, the Japanese purchased and licensed technology in an active manner and were able to get access to all the major technological developments in the West for an accumulated total of about \$5 billion US over the postwar period. This is a fraction of what is spent in the United States per year on R&D. They concentrated their resources within companies on adaptive engineering to improve quality further and reduce costs compared to the initial designs they had purchased and licensed.

What is central in Japanese performance is the fast implementation of technologies initially developed elsewhere, as illustrated in Table 4. It is particularly interesting that commercialization of R&D takes place so quickly, even though there is very little direct foreign investment in Japan. Most studies find that internal transfers of technology to subsidiaries occur more quickly than on an arm's-length basis, while the fast commercialization in Japan occurs in spite of limited foreign ownership or joint ventures in Japanese manufacturing.

Japan has clearly not been handicapped by being a late starter in industrialization and by having to rely initially on purchased technology. Three generalizations seem to correspond to the available evidence. For one thing, business and government in Japan have quite different attitudes about producing basic R&D in the natural science area, about adaptive engineering, and about the organizational and managerial aspects of implementing and commercializing new technology (initially purchased elsewhere). Secondly, the fast growth of markets (both within Japan, based on higher real incomes, and internationally, based on increased market share) has

TABLE 4
 Years from R&D to commercialization, selected countries, 1953-73

	1953-62	1963-73	1953-73
Britain	5.1	7.7	6.7
France	7.5	7.2	7.3
United States	8.4	6.4	7.4
West Germany	5.5	5.6	5.6
Japan	2.0	3.7	3.5
Average	7.6	6.3	6.9

SOURCE: Economic Planning Agency (1983) *Economic Survey of Japan, 1981-82* (Tokyo) English translation, 235.

permitted firms to move down the experience curve more quickly than in other slower growing markets. Japan’s share of world trade has grown from slightly more than 2 per cent in the middle 1950s to more than 7 per cent in 1982. This is in addition to the high growth in the domestic market. There is also evidence, at least for some products, that the experience curve was steeper for Japanese plants than US plants producing the same products.³⁶

The net results of these corporate strategies and the related public policies have been a rate of increase in output per hour in Japan that has brought its level in 1983 just behind the United States and West Germany, but above such other industrialized countries as Belgium, Canada, France, Italy, Sweden, and the United Kingdom. In addition, the increases in output per hour have been sufficiently greater than increases in total compensation per hour that unit labour costs in Japanese currency were lower in 1983 than they were in 1975 – a dramatic contrast with US and Canadian experience over the same period.

The Japanese experience is clearly inconsistent with the view put forth in Canada that implies that locally-produced R&D is a necessary condition for good economic performance in industrial products. Table 3 indicated that Canada has access to a significant amount of R&D (produced domestically, imported, and available from parent companies) and this has not prevented poor performance. Japan has

clearly been very successful by international standards with an early emphasis on buying, rather than producing, R&D domestically.

The previous low performance of Japan was shown in four indicators of technological innovation for ten industrially advanced countries based on data for the early 1960s. Japan ranked ninth, only slightly ahead of Canada, of the ten countries based on a composite ranking. The performance indicators were the location of one hundred significant innovations since 1945, monetary receipts for patents in 1963-4, number of patents taken out in foreign countries in 1963, and export performance in research-intensive product groups in 1963-5. All four measures had been standardized by the number of industrial employees (for the first two indicators) or by the market share of the ten countries manufactured exports (for the last two indicators).³⁷ This illustrates the point of the absence of correlation between technological innovation and subsequent productivity and cost performance. There had been little difference in the 1960s and earlier in technological innovation in Japan and Canada, but by 1983 Japan was the highest in growth in output per hour in manufacturing and Canada was the lowest. Similarly, Japan had the lowest level of unit labour costs in manufacturing in 1983, while Canada was the second highest. The United Kingdom had the highest level of unit labour costs in 1983, but had ranked second behind the United States in the same measures for the early 1960s.

POLICY IMPLICATIONS

If the readers expect to find some advice on policies to be implemented next week or next month, they are going to be disappointed! This survey is more social science, related to increasing knowledge, than research for immediate action. However, the analysis and the evidence thus far do suggest a different focus and emphasis on the nature of Canada's problems in manufacturing, and how technology can be brought to bear more effectively on these issues. Let me state the issues rather simply, at the risk of overstatement.

Much of the public and professional discussion in Canada has concentrated on the importance of natural science and engineering research and development undertaken within Canada as central in improved performance. The implication is that such domestic R&D is a

necessary and sometimes even a sufficient condition for high growth and productivity. It really reflects a high and even exclusive priority on the natural-science side of the technology triangle shown in Figure 1 earlier.

One fundamental problem with that emphasis is that a major part of new technology in the natural-science area comes from abroad – an important part through the multinational parent to the subsidiary (some of which is paid for, although the fees do not always cover the full costs of developing the new technology). Some also is obtained on an arm's-length basis between nonaffiliated companies, but becomes available with a longer lag and some associated costs by the acquiring firm. However, after allowances are made for the availability of new technology from abroad (which is a central source in a small open economy), new technology is available in Canadian manufacturing to a much greater degree than most public discussion in Canada would suggest.

A further important point is that the tax treatment of expenditures on natural science and engineering research and development in Canada has been extremely generous by international standards.³⁸ Furthermore, the changes introduced in the budget in late 1983 further increased that generosity. However, parts of that new legislation have had a significant impact on the legal and financial business of transferring property rights on tax incentives rather than leading entirely to increased research by the natural scientists! The new Progressive-Conservative government has announced that these features will be dropped.

Although it is too soon to assess fully the attitude of the new Progressive-Conservative government on the role of research and development, it would seem that their public statements have tended to continue rather than reject the previous emphasis in this area.

The analysis and evidence emphasized in the last and longest section of this paper suggest that the central problem in performance in the technology area relates to the *use* and *diffusion* of new technology, rather than the lack of availability of natural science and engineering technology. The problems are much more in the managerial, social science, and cultural areas of slow adoption and implementation of new technology. The problems lie in the 'soft' side of the technology triangle shown earlier that has not had the attention

it deserves, either in terms of research, or the policy aspects of what, if anything, the government can do to improve the situation, even in the longer term.³⁹ Previous policies in Canada have tended to stimulate R&D in the firm without the assurance that the organization has the competent and innovative management to translate technical success into commercial success, and such an emphasis often turns out to be a futile exercise.⁴⁰

If the lack of openness to change on the technological and organizational side of Canadian manufacturing is an important part of the problem, what can the government do about it? Four areas can be mentioned to illustrate the possibilities.

1 The government should continue to encourage steps that will increase competition domestically, by a continuation of reductions in tariff and nontariff barriers on the international trade side, and similarly permit an increased market share of foreign banks on the financial side. The evidence suggests that the degree of competition frequently emerges as a factor in facilitating faster diffusion of new technology, so this advice is consistent with that evidence.

2 The use of nontariff barriers and financial bailouts frequently operates to maintain the status quo in management and managerial practices. Unprofitable operations are sometimes a reflection of inadequate management, and government financial assistance tends to perpetuate the problems and prevent longer-term solutions.

3 The lack of knowledge about management and managerial performance tends to hinder a more informed policy. Management sometimes denies that there is any problem here or blames others (government or labour unions). Management problems typically occur simultaneously with problems of small plant size and product diversity, or with financial problems that limit the possibility of moving to larger plant and firm size. A regression study may attribute all the problems to scale and specialization, while management could be an important omitted variable. Research in these areas is still limited. Limited funding by the Social Science and Humanities Research Council (SSHRC) for strategic studies in management suggests this is unlikely to be rectified from that source. If the federal government wants to see increased funding for research

in such strategic areas as management, it may have to finance such a shift in priorities through another department or agency rather than through SSHRC.

4 The growth in budgets and resources for the teaching of management has not moved up as rapidly as the increased number of students seeking admittance. Furthermore, Canada has lagged behind the United States and Japan in continuing education and training for management and others beyond the formal educational system. There have been some indications that there is support for reducing the previous funding under established program financing, and replacing it with grants aimed more directly at areas of education of higher priority than is reflected in the current university allocation of resources. Management education, science, and engineering are potential candidates for a more selective emphasis on educational financing by the federal government.

None of these shifts in policies, even if introduced soon, could lead to early changes in Canadian performance in manufacturing. But other countries are not going to stand still. Almost all the major industrialized countries have had bigger increases in output per hour in manufacturing than Canada over the last three decades and this has persisted from 1973 to 1983. However, a correct identification of the problem is an essential first step in any steps to improve it, whether the solutions come from the private sector, changes in public policy, or both.

These views are different from those you typically see and hear. Most studies about Canadian trade and industrial structure tend to either ignore or play down the importance of management. However, the main contrast would be found with the views of the nationalists in Canada. They tend to blame the multinationals for having arbitrary limitations on exports, for importing technology rather than producing it domestically (even though more expensively), or by using transfer prices to divert corporate income (and the associated corporate profits) to the parent. They advocated producing more natural science and engineering R&D domestically, and for many years gave little attention to the diffusion and implementation of new technology (although that has begun to change).⁴¹ They may not get

high marks or the research support for their views, but they have been quite successful in getting press coverage and some policy changes, partly from regular lobbying with cabinet ministers and civil servants.

NOTES

- 1 Donald J. Daly (1979) *Canada's Comparative Advantage* Discussion Paper No., 135, (Ottawa: Economic Council of Canada) 36-46 (September). Based on James G. Frank et al. (1977) *Assessing Trends in Canada's Competitive Position: The Case of Canada and the United States* (Ottawa: The Conference Board in Canada).
- 2 John R. Baldwin, Paul K. Gorecki et al. (1983) *Trade, Tariffs, Product Diversity and Length of Production Run in Canadian Manufacturing Industries: 1970-1979* Discussion Paper No. 247 (Ottawa: Economic Council of Canada) 25 (November).
- 3 Previous studies by Eastman and Stykolt, Ron and Paul Wonnacott, the Economic Council of Canada's *Looking Outward*, Daly and Globerman, John Baldwin and Paul Gorecki, Harris and Cox and others illustrate the number of studies.
- 4 Studies by Steven Globerman, Ed Mansfield and the study coordinated by Dennis de Melto while with the Economic Council of Canada have provided evidence on these themes.
- 5 D.J. Daly (1984) 'Labour sharing of productivity improvement: Canada-Japan contrasts'. In J.W.C. Chow et al., eds, *Productivity Confronting the Crisis* (Edmonton: Decho International Inc.) 129-38 and subsequent discussion in the volume. These results on the much smaller increase in real compensation per hour than in real output per hour in manufacturing are the appropriate measures to use. The same phenomenon is reflected in a significant drop in the Japanese terms of trade, a pattern that is not reflected in comparable data for other industrialized countries who are large raw-material importers. The basis of the comparisons of changes in real output per hour and compensation per hour for the major industrialized countries come from the US Bureau of Labor Statistics. The corresponding data on price changes come from the official consumer price indexes for the individual countries, as available in the US Department of Commerce *Business Conditions Digest*. The deflation of compensation per hour by the consumer price index for individual countries are easy to do and have been

made available to Gary Saxonhouse. A full statement on sources and methods of the comparisons are available by writing to the author at York University. This footnote was strengthened but not modified by one of the criticisms made by Gary Saxonhouse, one of the discussants at the conference.

- 6 The comparison of the level of consumer prices in Canada and the United States was based on the 1965 comparison done by Craig West and others and reported in Dorothy Walters (1968) *Canadian Income Levels and Growth: An International Perspective* (Ottawa: Economic Council of Canada) 260. This was carried forward to 1983 using annual data for indexes of consumer prices in both countries from US Department of Commerce, *Business Conditions Digest* April 1984, 99 and 101. This comparison suggests that consumer prices were about 8.5 per cent higher in Canada than the United States in 1983. When hourly compensation in Canada was 93 per cent of US levels in 1983, real hourly compensation was about 15 per cent less in Canada. It is unfortunate that Canada has not participated in the International Comparison Project sponsored by the World Bank and the United Nations as 1965 is now a long way back for intercountry comparisons of price levels and the structure of prices. Significant change in price levels, relative prices, compensation, and exchange rates have taken place since the middle 1960s.
- 7 D.J. Daly (1984) 'High costs and low productivity erode profits'. *The Canadian Business Review*, 6-10, (Spring) and D.J. Daly (forthcoming) 'Inflation, inflation accounting, and its effect, Canadian manufacturing, 1966-1982', *Review of Income and Wealth*.
- 8 A.E. Safarian (1965) *Foreign Ownership of Canadian Industry* (Toronto: McGraw-Hill) and A.E. Safarian (1969) *The Performance of Foreign-Owned Firms in Canada* (Montreal: Private Planning Association of Canada).
- 9 A.E. Safarian, *ibid.*, 1969, 82.
- 10 Rarry M. Richman and Melvyn R. Copen (1972) *International Management and Economic Development* (New York: McGraw-Hill Book Company 1972). Chapter 10, 405-30. The volume refers on page 430 to four doctoral dissertations done at University of California, Los Angeles, on the Philippines, Chile, Britain, and Greece with similar results, and Gary Saxonhouse provides additional examples of other country studies in his comment.

- 11 Donald C. MacCharles (1978) *The Cost of Administrative Organizations in Canadian Secondary Manufacturing Industries* PhD Dissertation, Department of Political Economy (Toronto: University of Toronto) and D.C. MacCharles (1978) 'Long-run scale economies in the administrative organization of firms in Canadian secondary manufacturing industries'. Mimeo (Saint John, N.B.: University of New Brunswick) 29 September 1978.
- 12 John R. Baldwin, Paul K. Gorecki et al. (1983) *Trade, Tariffs, Product Diversity and Length of Production Run in Canadian Manufacturing Industries: 1970-1979* Discussion Paper No. 247 (Ottawa: Economic Council of Canada) 54-69 (November), and D.C. MacCharles (1984) *Canadian Domestic And International Intra-Industry Trade* (Saint John, N.B.: University of New Brunswick) April.
- 13 The whole topic of growth accounting has a large, and at times controversial, literature that most of the readers will be generally familiar with, and no effort will be made to document it here. Studies for most countries indicate rates of increase in output in relation to inputs from about 1950 to 1973 that were substantially above the longer-term experience for those countries, but show that a significant slowdown in output in relation to factor inputs has occurred in most countries from 1973 to date. However, the reasons for the slowdown and the relative contribution of different factors to that slowdown still defy a consensus among the researchers in this area.
- 14 W.E.G. Salter (1966) *Productivity and Technological Change* 2nd Ed., (Cambridge: Cambridge University Press) 48-99, and Benjamin Klotz, Roy Medoo, and Reed Hansen (1980) 'A study of high and low "labor productivity" establishments in US manufacturing'. In John Kendrick and Bea Vaccara, eds, *New Directions in Productivity Measurement and Analysis* (Chicago: University of Chicago Press for National Bureau of Economic Research [NBER]) 239-92. Similar variability from one establishment to another emerges in the Inter-Firm Comparisons project which has examined Canadian data.
- 15 Examples of the growing literature on Japanese competition with North American manufacturing with special emphasis on autos are Richard J. Schonberger (1982) *Japanese Manufacturing Techniques: Nine Hidden Lessons in Simplicity* (New York: The Free Press); Yasuhiro Monden (1983) *Toyota Production System: Practical Approach to Production Management* (Atlanta:

- Industrial Engineering and Management Press); Charles J. McMillan (1984) *The Japanese Industrial System* (Berlin: Walter de Gruyter); William J. Abernathy et al. (1983) *Industrial Renaissance: Producing a Competitive Future for America* (New York: Basic Books).
- 16 D.J. Daly, R. McClean and C.J. McMillan (1984) 'A multidisciplinary survey of office automation and productivity'. Mimeo. York University (July). This idea was contributed by C.J. McMillan.
 - 17 Gerhard Mensch (1979) *Stalemate in Technology: Innovations Overcome the Depression* (Cambridge, Mass.: Ballinger), based on tables 4-1 to 4-4, 124-8.
 - 18 See the study by Murray Brown in Murray Brown, ed., (1967) *The Theory and Empirical Analysis of Production* (New York: Columbia University Press for the NBER).
 - 19 Statistics Canada, (1982) *Annual Review of Science Statistics, 1982* (Ottawa: Supply and Services) 41-50 and 63.
 - 20 Ibid., 55-7.
 - 21 J.J. Brown, (1967) *Ideas in Exile* (Toronto: McClelland and Stewart); J. Nosibakken and J. Humphrey (1967) *The Canadian Inventions Handbook* (Toronto: Grey de Pencier Publications); and Rein Peterson (1977) *Small Business: Building a Balanced Economy* (Erin: Porcepic), 21-30.
 - 22 Donald J. Daly (1979) *Canada's Comparative Advantage* (Ottawa: Economic Council of Canada) Discussion Paper No. 135, 54-67.
 - 23 D.J. Daly and S. Globerman (1976) *Tariff and Science Policies: Applications of a Model of Nationalism* (Toronto: University of Toronto Press) 85-98.
 - 24 Economic Council of Canada (1983) *The Bottom Line: Technology and Trade and Income Growth* (Ottawa: Supply and Services) 52-7.
 - 25 Bernard M. Wolf (1984) 'The bearing industry: rationalisation in Europe'. F.A.S. Working Paper Series, York University (August).
 - 26 D.J. Daly (1979) 'Canadian management: past recruitment practices and future training needs'. In Max von Zur Muchlen, ed., *Highlights and Background Studies* (Ottawa: Federation of Deans of Management and Administrative Studies) 178-200.
 - 27 Seymour Martin Lipsett (1975) 'Revolution and counter-revolution – the United States and Canada'. In Thomas R. Ford, ed., *The Revolutionary Theme in Contemporary America* (Lexington: University of Kentucky Press) 21-64, esp. 38-43; and

- Robert H. Presthus (1979) 'Evolution in Canadian political culture: politics of accommodation'. In Richard Preston, ed., *Perspectives on Revolution and Evolution* (Durham, N.C.: Duke University Press). Arthur Lower and J.M.S. Careless reached similar conclusions earlier. John Porter (1965) *The Vertical Mosaic* (Toronto: University of Toronto Press) and Wallace Clement (1975) *The Canadian Corporate Elite* (Toronto: McClelland and Stewart) esp. Chapter Five, 172-223, have emphasized the important role of élites in Canadian business. This emphasis on the élites reflects a historic tendency in Ontario especially to view the educational system as an institution to preserve the position of élites. Science and management subjects developed in universities many decades later than in the United States. I would think that the results of these earlier Canadian studies by historians, sociologists, and political scientists would be consistent with Mancur Olson's (1982) recent work, *The Rise and Decline of Nations* (New Haven, Conn.: Yale University Press). In his comments Gary Saxonhouse comes close to rejecting the idea that social forces can affect economic performance, but this author felt he had taken an extreme position that could not be supported.
- 28 Ministry of State for Science and Technology, *Importation of Invisible Research and Development, 1974-1976* (Ottawa: Background Paper No. 3, July 1978). Kris Palda brought this neglected study to my attention.
 - 29 Richard E. Caves (1982) 'Multinational enterprises and technology transfer'. In Alan M. Rugman, ed., *New Theories of the Multinational Enterprise* (New York: St. Martin's Press) 258-62.
 - 30 W.H. Davidson and Donald G. McFetridge (1984) 'International technology transactions and the theory of the firm'. *Journal of Industrial Economics*, 253-63 (March); and Jack Baranson (1978) 'Technology transfer: effects on US competitiveness and employment'. In Wm. G. Dewald, ed., *The Impact of International Trade on Investment and Employment* (Washington: US Department of Labor) 177-203; and J. Baranson (1978) *Technology and the Multinationals: Corporate Strategies in a Changing World Economy* (Lexington: Lexington Books).
 - 31 E. Mansfield, A. Romeo, M. Schwartz, D. Teece, S. Wagner and P. Brach (1982) *Technology Transfer, Productivity and Economic Policy* (New York: W.W. Norton).
 - 32 Richard E. Caves (1982) 'Multinational enterprises and technology transfer'. In Alan M. Rugman, ed., *New Theories of the*

- Multinational Enterprise* (New York: St. Martin's Press) 258-62, referring to a 1977 study by David Teece.
- 33 Donald J. Daly (1979) *Canada's Comparative Advantage* (Ottawa: Economic Council of Canada) Discussion Paper No. 135, 54-68.
 - 34 Government of Canada (1972) *Foreign Direct Investment in Canada* (Ottawa: Information Canada) table 29, 164.
 - 35 D.J. Daly and D.C. MacCharles (1984) Canadian manufactured exports: constraints and opportunities'. Mimeo (York University).
 - 36 J.C. Abegglen and William V. Rapp (1973) 'Japanese Managerial Behaviour and Excessive Competition'. In Donald S. Henley ed., *International Business* (East Lansing, Michigan: Michigan State University) 65-82.
 - 37 Report of the Senate Special Committee on Science Policy (1970) *A Science Policy for Canada* Vol. I, 135; and D.J. Daly and S. Globerman (1976) *Tariff and Science Policies: Applications of a Model of Nationalism* (Toronto: University of Toronto Press) 68-109.
 - 38 D.G. McFetridge and J.P. Warda (1983) *Canadian R and D Incentives: Their Adequacy and Impact* (Toronto: Canadian Tax Foundation).
 - 39 D.J. Daly (1983) 'Natural science and human science research – does research funding match Canada's problem areas?' In *Cahiers* No. 9: (Ottawa: Social Science Federation of Canada).
 - 40 Kristian S. Palda and Rohamir Pazderka (1982) *Approaches to an International Comparison of Canada's R and D Expenditures* (Ottawa: Supply and Services for the Economic Council of Canada) 40.
 - 41 The most comprehensive statement of this position is in J.W.H. Britton and J. M. Gilmour (1978) *The Weakest Link: A Technological Perspective on Canadian Industrial Underdevelopment* (Ottawa: Supply and Services for Science Council of Canada). For critiques of that study see D.J. Daly (1979) 'Weak links in "The Weakest Link".' In *Canadian Public Policy* 307-17 (Summer); A.E. Safarian (1966) *Foreign Ownership of Canadian Industry* (Toronto: McGraw-Hill); and A.E. Safarian (1979) 'Foreign ownership and industrial behaviour; a comment on 'The Weakest Link'.' In *Canadian Public Policy* (Summer) 318-335.

Comments

Gary R. Saxonhouse

University of Michigan

Perhaps it is fitting that this final paper in a conference on the services industry in a Canadian/US perspective deals centrally with the performance of the Canadian economy and its relationship to at least one significant internationally traded service.

In the first section of his paper, Daly defines the problem he wishes to analyse. Over the course of the past twenty-five years, manufacturing has become increasingly important for the Canadian economy. At the same time, Daly reports the now familiar evidence that productivity in Canadian manufacturing is relatively low with respect to levels and rates of increase over the last decade. Productivity in Canadian manufacturing is particularly low by comparison with rates of increase in wages for Canadian workers.

I accept this premise of Daly's and, as will be seen later, I also accept his critique of the Science Council remedy for this poor productivity performance. I do, however, have problems with some of the details of Daly's supporting evidence and I am also sceptical of his proposed remedy.

First, when Daly constructs his international comparisons of labour cost performance over time, he converts foreign data to US dollars at prevailing exchange rates. Now, in some contexts this makes sense. If your interest and policy prescriptions, however, are directed at firm-level managerial performance, this is not entirely relevant evidence. With Daly's approach, Japan has a decline in unit labour costs since 1980. This decline as calculated has not much to do with the good Japanese management that Daly admires, and rather a lot to do with

macroeconomic policy in Japan and the United States about which Daly has nothing to say.

Quite frankly, it is only when Daly makes this misleading conversion that he properly finds that Japanese unit labour costs have fallen since 1980. Otherwise, Daly's pronouncement, made at least twice in his study, that Japanese unit labour costs have fallen in domestic currency terms between 1973 and 1983 is flatly incorrect. Between 1973 and 1983, unit labour costs in Japan in domestic currency terms have increased at an average annual rate of 5.5 per cent (Ministry of Labour). While this rate of increase is still far below the Canadian experience, Daly will doubtless be surprised to learn that US unit labour costs also increased at an average annual rate of just 5.5 per cent during this same period (see *Monthly Labour Review*). Daly is quite correct in noting that rate increases in US and Japanese compensation per hour were almost identical between 1973 and 1983. What he fails to realize, however, is that during this same period, productivity improvements in Japan and the United States also differed by less than 1 per cent on an average annual rate!

Quite apart from using the current exchange rate in unit labour cost-increase comparisons, Daly also gives a somewhat misleading account of who has received the benefits of the Japanese productivity increases, which have been so rapid by comparison with the Canadian experience. Daly says increases in real wages are only one fifth of increases in Japanese productivity in recent years and that this is very different from the experience of other countries. Experience may be different in Japan, but it's not that different. This figures does not follow from the tables in the reference Daly cites, nor is it in accord with any other calculations I am aware of. Even if Daly has read his tables correctly, if he is interested in how the manufacturing sector's gains from increased productivity are distributed, I don't think the relevant deflator for manufacturing wages is the consumer price index. Daly should use an index that reflects price changes in the output of the manufacturing sector. The Japanese consumer price index he uses is dominated by changes in the price of services, particularly distribution services, and its use is responsible for Daly's incorrect statement. Incidentally, the same inappropriate deflation leads to the result cited by Daly that 'experience curves were steeper for Japanese plants than US plants producing the same products'.

Having established the outline of Canadian productivity performance in the first section of this paper, Daly then examines the relationship between the character of Canadian performance and the nationality of ownership. Daly reports familiar results that foreign-owned firms are more productive but that this productivity gap diminishes as Canadian firms grow larger. Daly notes these results are consistent with evidence on ownership comparisons in the United Kingdom, Australia, and India. I should hasten to point out these findings are also consistent with other studies done for Japan, colonial Korea, Czarist Russia, and pre-Manchurian-incident China.

Daly attributes much of this difference in performance to varying degrees of managerial competence and training. This explanation may well be correct, particularly in those cases where good profit data are available. In at least a number of the non-Canadian cases, however, a more plausible explanation than unknown differences in managerial competence, stresses the differing relative prices faced by domestic-owned and foreign-owned firms in the host country. These different relative prices are the result of both labour and capital market imperfections in the host country. These imperfections operate differentially by scale for domestically-owned firms, leading the largest domestic firms to face relative prices closest to those facing foreign-owned firms. This, in turn, leads these large firms and the foreign-owned firms to make roughly similar decisions with respect to capital intensity.

Following this discussion, Daly attempts to isolate the role of technology in Canadian productivity performance and to link it to his stress on managerial competence. I agree with Daly that technology is an important determinant of differences in productivity and that it is important to look not just at hardware and science but also at organizational variables. This is a good hypothesis, but I remain sceptical of some of the evidence Daly has provided to support it. Daly cites wide differences in the rates of adoption of new technologies across countries as compelling evidence for the role of organizational variables. Unfortunately, careful historical and contemporary study suggests the lags in adoption literature (particularly the econometric work that has been done in this area) suffer from serious errors-in-variables and omitted variable problems.

Daly suggests economists would have a better understanding of the process of structure change if only they focused their attention on

particular cases. When close attention, however, is paid to particular instances of lags in new technology adoption, as, for example, in the historical work of Nathan Rosenberg, there are usually very good economic explanations for why such lags occur. Only rarely do the explanatory variables Daly likes best come into play. Indeed, even the automobile examples Daly cites can be given alternative interpretations. Japanese success in the North American market came not from any special organizational genius in the 1970s. Detroit had for decades conceded the relatively minor small-car market to overseas producers who had historically specialized in this area. Indeed, the larger Japanese producers were planning to de-emphasize small-car production when the unanticipated change in energy prices resulted in an enormous increase in the small-car market and made them look like geniuses. In a similar vein, however much or little Lee Iacocca may be admired, Chrysler's recovery, as Ford's, is primarily because of the continued maintenance of quotas on Japanese imports! For these reasons, it is not surprising that the just-in-time (or *kanban*) inventory system has much less influence on successful non-Japanese performance than Daly imagines. Daly seems unaware that in many important respects *kanban* is simply a response to the very high price of land in Japan. This is surely not a Canadian problem.

Daly's stress on organizational variables often leads him down particularly strange paths. I think it is unhelpful to attribute relatively poor US, UK and Canadian productivity performance to the absence of the economic and social revolutions that Daly believes engulfed Continental Europe and Japan. Even if it is true that economic and social change have been more profound in Continental Europe and Japan than elsewhere, which is debatable, it is difficult to sort out what is cause and what is result of productivity change. Similarly, Daly's unsurprising advocacy of growth in budgets and resources for the teaching of management draws little support from the Japanese experience. Daly may be surprised to learn that the MBA degree is virtually unknown in Japan and that the Japanese government invests only trivial resources in support of graduate management education.

Even if Daly's stress on managerial performance remains unconvincing there is much in his controversial analysis of Canadian science and technology policy that does deserve wider attention. Daly properly notes the lack of any necessary close geographic connection

between where investment in research and development are made and where they are exploited. Future investment in Canadian science and technology is unlikely to be correlated with future progress in Canadian manufacturing. As Daly observes, a high proportion of Canadian-origin innovations are first exploited elsewhere even as Canadian industry itself relies mostly on foreign technology. Given global integration of goods and technology markets, small size will not necessarily prevent Canada from having an important role as a producer of new technology. It is on this basis that proposals to invest in Canadian science and technology should be evaluated and not on the basis of any necessary link with the rest of the Canadian economy. In any such evaluation, it should be remembered that the reaping of national gains from global externalities-prone science and technology investments is a special and important problem. The productivity experience of science-poor Japan underlines the lack of any particular connection between investments and benefits in this area.

Comments

Andrew R. Moroz

Institute for Research on Public Policy, Ottawa

The need to improve the competitiveness of Canadian firms and industries has long dominated the economic policy agenda in Canada. Indeed, one of the major factors underlying the current debate in Canada over whether or not to enter some form of a free trade agreement with the United States is the recognition that Canadian industries and the Canadian economy are running out of time and options. Few now doubt that Canadian firms must shape up in terms of competitiveness and productivity, and that the Canadian economy can no longer be expected to perform well with a manufacturing sector characterized by high costs and low productivity.

Unfortunately, neither the world economy nor the prospects for the future are what they used to be. In a highly uncertain and highly integrated world economy, characterized by international specialized production and stiff product and cost competition, the discovery and commercialization of inventions and the diffusion of product and process innovations can have a major impact on the structure and competitiveness of an industry, and on the structure, potential, and performance of an economy. As a result, technology policy is now a major consideration in most policy discussions, and one frequently reads in Canadian government and private sector papers such statements as 'if Canada is to maximize future economic growth and to raise living standards through increased trade, we must strengthen our high technology manufacturing and services sectors,' (Grossman 1984, 9).

Technology and technology policy are also major concerns in the United States. Technological leadership, be it in technologically

superior products, production processes, or management systems, has long been a key ingredient in US competitiveness and performance. However, the US technological edge has narrowed considerably in recent years, to the point that in some industries the United States can no longer be said to have the lead. At the same time, private and public policy makers in the United States recognize the key role technology plays in the process of structural adjustment needed to regain international competitiveness in traditional industries. In order to assist firms to adjust in traditional sectors and stay ahead in modern sectors, the US government has introduced numerous domestic policies to stimulate research and development (R&D) and technological advancement. Technology policy considerations are also playing an increasingly important role in US trade policy. The United States is keen to develop and negotiate international rules on 'high technology trade'; rules that would limit and control foreign policies that either restrict US exports of high technology products and assist local high technology industries, or require US firms to transfer technology as a condition for trade and direct investment in the foreign country.

The United States and Canada both agree on the importance of technology but find themselves in many instances on the opposite side of technology policy. This is partly explained by the asymmetry in the size and dynamism of their economies. There are, of course, other factors; however, as Daly suggests, the issues of technology and technology policy are not always well understood, particularly in Canada.

Daly raises three important and interrelated issues: the importance of technology (and note technology and not R&D) for competitiveness; the different ways that new technology can be obtained; and the distinction between access to new technology and the adoption of this new technology. Few now doubt that technology and technological advancement play an important role in improving product competitiveness and production productivity. The only thing that can be added is that technological advancement and superiority are likely to play an increasingly larger role in the future, and consequently, governments as well as industries will find themselves competing even more in technology and technology policy. One immediate consideration for Canada and the United States is that any bilateral trade negotiation will have to deal with the issue of

'sovereignty' over technology policy, be it government actions to stimulate R&D, increase the speed of adoption, diffusion, and adaptation, or develop particular high technology industries.

The question of how new technology is obtained is a particularly important policy issue for Canada, not only because of the desire to develop niches in high technology sectors, but because of the importance that technology plays in structural adjustment and improved competitiveness in any industry, traditional or modern. Despite generous R&D incentives, Canadian industries have a record of low spending on applied R&D and the even lower spending on basic R&D. These low R&D spending levels are seen by many observers as a major cause of both Canada's technological and competitive inferiority. Numerous Canadian observers also argue that foreign ownership is a major reason for the poor R&D performance. However, research by Daly and by others, particularly at the Economic Council of Canada, has shown that the low levels of R&D spending cannot be solely, if at all, attributed to high foreign ownership and control.¹ More important, this research has identified and stressed the critical difference between 'making' technology and buying technology.

As Daly shows in Table 3 in his paper, the amount of actual R&D performed in Canada is significantly less than the amount available for use by Canadian firms. The option of buying technology, especially from abroad, raises a wide range of specific economic issues, including the speed and effort of adoption and adaptation of foreign technology, the means of importing foreign technology (that is, licensing, joint ventures, intracorporate technology transfer, and so forth), and the speed of diffusion of foreign technology within the domestic economy. There are also numerous policy concerns; in particular, the impact of current policies on adoption and diffusion rates, the high degree of dependence on foreign 'made' technology, the reliance on technology transfers by foreign-owned multinational enterprises (MNEs) as the main means of importing foreign technology, and the impact of the associated service payments on the balance of payments. Nor are these economic and policy issues easily sorted out or resolved. For example, the MNE may be a faster and more efficient means of obtaining the latest and most advanced technology; however, 'making' technology and importing technology are not necessarily equal 'substitutes' in a world economy where not only improving product and process technology but also establishing a clear

technological edge are major determinants of dynamic competitive advantage. Within the broad range of issues that emerge, a major concern in Canada is that the diffusion of new technology into Canada and within Canada is slower than in other advanced countries.

The reasons for the slowness of technological diffusion into and within Canada are numerous, varied, interdependent, and not all that different from those factors thought to affect the level of R&D spending in Canada. A list of economic reasons for both low R&D activity and slow technology diffusion would include the output mix of the Canadian economy, the market size and structure of individual industries, and company and production plant characteristics such as plant size, diversity of plant production, length of production run, source of financial capital, and size of the technology investment.² Access to technology, however, does not seem to be an important factor. As Daly points out in his discussion on R&D spending, 'access to natural science and engineering technology is not the central problem in poor performance in the use of best practice technology'. Moreover, he presents arguments and cites evidence that access to foreign technology is not a significant factor in explaining the slow rate of diffusion. And the arguments for both low R&D spending and diffusion are not limited to the usual economic factors.

It would appear that the unwillingness of Canadian firms to develop and commercialize inventions and to exploit quickly accessible best practice technology is partly explained by managerial and entrepreneurial characteristics. While such characteristics as age and education of managers are frequently discussed, the basic factors break down to managerial attitudes about risk taking, change, and exploiting opportunities. The attitudinal factors that affect the willingness of managers and management, as well as unions and labour leaders, to seek out, look at, and introduce innovations may be one significant factor in explaining the differences between the Canadian and US technology performances. If this is the case, then one reason for wanting to expose Canadian firms to more foreign competition is to force Canadian managers and management to become more effective and competitive in their management practices and strategies.

In conclusion, the immediate lesson from Daly's paper is twofold: Canada's poor technology performance is not due to any one single factor, and simply stimulating R&D activity alone will not solve

Canada's technological gap. The broader lesson is that more R&D spending and faster technological diffusion are not, in themselves, the solution to the problems facing Canadian industries. Technology policy should not be viewed as a 'one-stop' policy solution for the Canadian economy. While Daly may underestimate the importance of developing a 'critical mass' of R&D activity in Canada, it is clear that a major policy package is required: a policy package that includes more than providing subsidies and tax incentives for R&D and technological diffusion, and developing institutions for improving the distribution of information about new technologies. There is little doubt that numerous Canadian industries and the Canadian economy must undertake serious structural adjustments; the past indicates providing protection does not lead to positive adjustment. Clearly, trade liberalization, preferably at the multilateral level, but bilaterally if multilateral progress is limited, is a key component of the required policy package. However, the policy package will require other elements that will allow an orderly adjustment and provide adequate resources for the private sector to undertake these adjustments. The outstanding question is what the US reaction will be to both the package and to the individual elements of the package.

NOTES

- 1 This research also shows that the statistical evidence on the link between R&D spending and productivity is inconclusive. This finding, of course, is partly explained by the great difficulties in measuring statistically the relationships and by the fact that much of R&D spending is directed to developing new products which then allow buyers of the products to improve their productivity. For a discussion of the measurement problems and empirical results, see Chapter 3 in Economic Council of Canada (1983).
- 2 To this usual list, one other important economic factor might be added. The Introduction and operation of new sophisticated equipment requires specific labour skills which in many instances are not readily or cheaply available. The shortage and high cost of skilled labour may also be an important factor in slow rate of diffusion.

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Participants

Brutawit Abdi
American Bankers Association

William Alexander
Bank of Canada

Caratina L. Alston
US Department of Commerce

Jonathan Aronson
University of Southern
California

Alex Athanassakos
Ontario Economic Council

Lloyd C. Atkinson
Bank of Montreal

Tracy J. Babaird
Bank of Nova Scotia

Robert E. Baldwin
University of Wisconsin

Claude Barfield
American Enterprise Institute

Shelly P. Battram
Tyler, Reynolds, Kenny &
Thayer, P.C.

Thomas A. Bernes
Organization for Economic
Co-operation & Development

Harry Bowen
New York University

John Brady
Ontario Ministry of Industry and
Trade

David Burgess
University of Western Ontario

William J. Carral
Department of Consumer &
Corporate Affairs, Ottawa

John Chant
Simon Fraser University

David Conklin
Ontario Economic Council

Lilla Connidis
Royal Commission on the
Economic Union and
Development Prospects for
Canada, Ottawa

Ralph K. Cowan
University of Windsor

Peter Cowhey
University of California, San
Diego

Douglas Crocker
Ontario Economic Council

Donald J. Daly
York University

Alan V. Deardorff
University of Michigan

Germain A. Denis
Department of External Affairs,
Ottawa

Gerald R. Faulhaber
University of Pennsylvania

Geza Feketekuty
Office of the US Trade
Representative

Elaine Feldman
Department of External Affairs,
Ottawa

Prem Gandhi
State University of New York,
Plattsburgh

Rodney de C. Grey
Institute for Research on Public
Policy, Ottawa

Gene Grossman
Princeton University

Ingrid Hall
Department of External Affairs,
Ottawa

Glenn W. Harrison
University of Western Ontario

Maureen Irish
University of Windsor

John H. Jackson
University of Michigan

Thomas Jennings
US International Trade
Commission

Ronald W. Jones
University of Rochester

Irving B. Kravis
University of Pennsylvania

Peter Kresl
The Association for Canadian
Studies in the United States

Kristina Liljefors
Department of Regional
Industrial Expansion, Ottawa

Robert Logan
IBM Canada Limited

Helene McCarren
University of Michigan

Rachel McCulloch
University of Wisconsin

Garry McKeever
Canadian Imperial Bank of
Commerce

James Melvin
University of Western Ontario

John M. Morgan
University of Toledo

Peter Morici
National Planning Association

Andrew Moroz
Institute for Research on Public
Policy, Ottawa

Richard Neu
The RAND Corporation

Ellen Nosé
New York University

Jacques Nusbaumer
General Agreement on Tariffs
and Trade (GATT)

Robert Parker
Royal Bank of Canada

Alan Rapoport
National Science Foundation

Lisa Rutstrom
University of Western Ontario

Alan Rugman
Dalhousie University

Gary R. Saxonhouse
University of Michigan

Jeffrey Schott
Institute for International
Economics

Partha Sen
University of Michigan

Murray Smith
C.D. Howe Institute

Helena Stalson
Council on Foreign Relations

Robert M. Stern
University of Michigan

Frank Stone
Institute for Research on Public
Policy, Ottawa

James H. Trask
General Motors Corporation

Leonard Waverman
University of Toronto

Adrian E. Tschoegl
University of Michigan

Bernard M. Wolf
York University

Steven H. Van Houten
General Motors of Canada
Limited

Ronald J. Wonnacott
University of Western Ontario

John Whalley
University of Western Ontario

Helen Youngelson
Portland State University

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